

RCA

Camcorder Owner's Manual

Operating Instructions
Warranty Information

*Please read completely
before attempting to
operate your new RCA
product.*

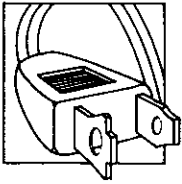
CC285

VIDEO CAMCORDER

VHS

Safety Precautions

Your Video Camcorder AC Adapter/Charger will operate on 120 volts, 50/60 Hz only and has a polarized plug. Because one blade of the plug is wider than the other, the plug fits in the wall socket only one way. Do not defeat the safety feature of this plug. If you need an extension, use a polarized cord.



CAUTION: To prevent electric shock, do not use the polarized plug on this Video Camcorder or AC Adapter/Charger with an extension cord, receptacle, or other outlet unless the blades can be inserted fully to prevent blade exposure.

MISE EN GARDE: Pour prévenir les chocs électriques, ne pas utiliser la fiche polarisée de cet appareil avec une rallonge, une prise de courant ou une autre sortie, à moins que les lames ne puissent être insérées à fond sans qu'aucune partie ne soit laissée à découvert.

CAUTION: To reduce the risk of electric shock, do not remove the cover or back. No user-serviceable parts are inside. If you spill liquid on the Camcorder, disconnect the AC Adapter/Charger power cord to prevent possible fire or shock hazard and consult authorized service personnel. Moisture can damage internal parts. Refer all service to Authorized RCA Camcorder Servicenter personnel only.

CAUTION: Read "Important Safety Instructions below for AC Adapter/Charger" before use.

CAUTION: Maintain electrical safety. Powerline-operated equipment or accessories connected to this unit should bear the UL listing mark or CSA certification mark on the accessories themselves and should not have been modified so as to defeat the safety features. This will help avoid any potential hazard from electric shock or fire. If in doubt, contact qualified service personnel.

WARNING: To prevent fire or shock hazard, do not expose Camcorder and AC Adapter/Charger to rain or moisture.

CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN



MISE EN GARDE

RISQUE DE CHOC ELECTRIQUE
NE PAS OUVRIR



The symbol of a lightning flash within a triangle is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure and which may be of sufficient magnitude to constitute a risk of electric shock.



An exclamation point within a triangle is intended to alert the user to the presence of important operating and maintenance (service) instructions in the literature accompanying the product.

CAUTION: Avoid operating your Camcorder immediately after moving it from a cold location to a warm location. Give the Camcorder 1 1/2 to 2 hours to reach a stable temperature before inserting a video cassette. When moved from a cold area to a warm location, moisture may condense on the head drum inside the machine. This moisture could cause the tape to stick to the head drum and damage the head wheel or tape.

IMPORTANT SAFETY INSTRUCTIONS FOR AC ADAPTER/CHARGER

- Before using AC adapter/charger, read all instructions and cautionary markings on (1) AC adapter/charger, (2) battery, and (3) product using battery.
- **CAUTION:** To reduce risk of injury, charge only rechargeable battery, type BP96FS/BP96FL. Other types of batteries may burst, causing personal injury and damage.
- Do not expose charger to moisture of any kind.
- Use of an attachment not recommended or sold by the battery charger manufacturer may result in a risk of fire, electric shock, or injury to persons.
- To reduce risk of damage to electric plug and cord, pull by plug rather than cord when disconnecting charger.

- Make sure cord is located so that it will not be stepped on, tripped over, or otherwise subjected to damage or stress.
- Use of improper extension cord could result in a risk of fire and electric shock. If extension cord must be used, make sure that:
 1. Pins on plug of extension cord are the same number, size, and shape as those of plug on charger.
 2. Extension cord is properly wired and in good electrical condition; and
 3. Wire size below is met.

Minimum
AWG size

18

16

Length of
extension
cord (feet)

Equal to or less
than 100

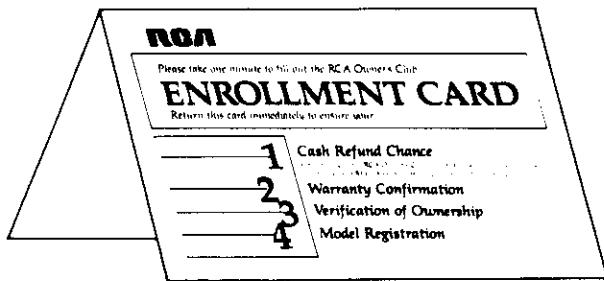
Equal to or less
than 150

- Do not operate charger with damaged cord or plug; replace them immediately.
- Do not operate charger if it has received a sharp blow, been dropped, or otherwise damaged in any way; take it to a qualified serviceman.
- Do not disassemble charger; take it to an Authorized RCA Camcorder Servicenter when service or repair is required. Incorrect reassembly may result in a risk of electric shock or fire.
- To reduce risk of electrical shock, unplug charger from outlet before attempting any maintenance or cleaning.
- Be sure to save these operating instructions for future reference.

RCA Owner's Club

Mail Your Enrollment Card Today

- An *RCA Owner's Club Enrollment Card* is packed with your camcorder. Please fill out the card and return it immediately.
- Your name then will be enrolled in the next drawing, which takes place every three months. If your name is drawn, you will be reimbursed for the *full purchase price* of your new RCA product (restricted to residents of USA only).
- Your prompt submission of this card confirms your right to the protection available under the terms and conditions of the warranty and also allows us to contact you in the unlikely issuance of a safety modification.
- With your card on file, we can also help you in the event of loss or theft by verifying your ownership.
- If you did not receive an RCA Owner's Club Enrollment Card, please contact your dealer.



Attach Your Sales Receipt Here and File at Home For Future Reference

- To obtain warranty parts and service, you must show your sales receipt (or other evidence of purchase) to your Authorized RCA Servicenter.
- Tape or staple your sales receipt to this manual so you will have it handy should service ever be needed. **Do not mail your sales receipt to us.** File it at home with your owner's manual for future reference.

Record Vital Information Here

- No other camcorder has the same serial number as yours. You will find the serial number and the model number on the bottom of your camcorder (and pre-printed on your Enrollment Card).
- Make sure you record both numbers below so that you will have them in case your camcorder is stolen or in case you need a complete description for any other reason.

Model: CC285 Serial: _____

Purchase Date: _____

Dealer Name/Address/Phone: _____

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Introduction

Thank You For Choosing an RCA Camcorder.

You have selected a precision-engineered product designed to give you years of performance and enjoyment.

Although your camcorder is very simple to use, it is important that you read and carefully follow the instructions in this guide until you are completely familiar with the proper operating procedures. This manual is arranged in the order that we

anticipate you will use it to operate your new camcorder. You'll find a simplified quick-operation guide on page 5 and a complete index in the back.

If you should experience a problem, always refer first to the trouble-checks section on pages 46 and 47. Many times a simple solution is all that's needed, and it could save you a costly service call.

Be Sure To Save These Operating Instructions For Future Reference.

Should your camcorder require service during the warranty period, refer to the back cover of this manual for a description of what we will do and instructions on how to request service.

Features

Camcorder Features

Camcorder Convenience

This lightweight, easy-to-use camcorder has all the features of a deluxe video camera and the convenience of the VHS format. Shoot up to 2 hours and 40 minutes* of video (with a T-160 tape).

Play your tapes back either in the camcorder or in any VHS VCR. You can also use the camcorder as a video player to play back rented or prerecorded video tapes on any TV.

*For extended recording, camcorder must be used with AC adapter or additional optional batteries.

6x Power Zoom Lens with Macro

The CC285 features a fast f1.2, 6x power zoom lens that allows you to smoothly zoom from wide-angle to telephoto shots. You can use the power zoom, or use the manual zoom ring when you need fast zooms to follow the action.

Optional wide-angle and telephoto adapters (shown on page 44) are available to further increase either wide-angle or telephoto range.

Built-in macro feature lets you shoot dramatic close-ups (as close as 1/4"). Great for nature photography and special effects.

1/2" Solid-State CCD Image Sensor

State-of-the-art Solid-State CCD (Charged Coupled Device) chip converts the light into a video image and produces pictures even in exceptionally low light levels. Provides sharp, vivid color pictures.

Flying Erase Head

A separate erase head is mounted on the spinning headwheel (hence the term "flying"). This allows you to

make clean edits without "glitches" or the "rainbow noise" that occurs on VCR's and camcorders without flying erase heads.

Video/Audio Dub

Video and audio dubbing allow you to simply and quickly insert new video, new audio, or new video *and* audio into existing tapes. (Some camcorders allow you to insert new video or audio, but not both.) The combination of video/audio dubbing with the flying erase head gives you clean, "glitch free" edits.

New video can be inserted from the camcorder camera, or from another VCR or camera. New audio can be inserted from the camcorder's microphone, an optional external microphone, or an external audio device (such as a tape deck, CD player, etc.).

Edit Search

Edit Search means that you can use the *F.FWD*, *REW*, and *PLAY* buttons to precisely position the tape even while the camcorder is in the camera mode (ready to record). Since you can do this while the camcorder is in the camera mode, without the tape unloading, it is possible to precisely position the tape for the next scene—eliminating the "between-scene glitches" that are common on camcorders without this feature.

"Synchro Edit"

Synchro edit allows your camcorder to control a compatible VCR (one with a Camera Pause Jack) while tapes are being copied from the camcorder to the VCR. The *PAUSE* button on the camcorder causes the VCR to start and stop recording. An optional AVS010 synchro edit cable (shown on page 44) is required.

High-Speed Shutter System

Standard video cameras have a shutter speed of 1/60 second. This RCA camcorder has a variable-speed electronic shutter that allows you to increase the shutter speed to 1/500 or 1/1000. This lets you "freeze" fast-moving action when the tape is played back in slow motion or stop action on a VCR with field-still or digital special effects.

When you choose a high shutter speed, you must consider the amount of light available (higher shutter speeds require more light). A flashing shutter speed display alerts you when more light is needed for the higher shutter speed. See page 45 for lighting accessories.

Constant Automatic White Balance

Built-in circuitry continuously adjusts for proper color balance, indoors or out.

Fade Button

Simply by pushing the *FADE* button, you can fade out of or into a scene. Provides professional-looking scene transitions. Fades both video and audio.

Time-Lapse Recording

Camcorder can be programmed to make a series of 1-sec. recordings that occur 30 sec., 1 min., 2 min., or 5 min. apart. When played back, this has the effect of compressing time, or time lapse. Great for recording and examining slowly developing action.

"Animation" Recording

Camcorder can also make a series of "single shot" recordings. You can create animation-type or cartoon-type effects by shooting an object, moving it, shooting it again, etc. When played back at normal speed, this has the effect of animating the object you were shooting.

Features (cont.)

Index Recording

Camcorder automatically records index marks at the beginning of new recordings. These index marks can be recognized by VCR's which use the VHS Index Search System, making it easier to locate program segments for playback.

Electronic Viewfinder

Electronic viewfinder (EVF) displays in black and white exactly what will be recorded on the tape in color. Also allows you to instantly view (in B&W) what you've shot. Adjustable diopter allows EVF focus to be changed without affecting lens focus. Permits most users who wear glasses to remove them when watching the viewfinder.

EVF On-Screen Displays

Tape Counter: Tape counter with memory lets you locate specific parts of your tape.

Battery Level: Lets you know the status of the battery's charge.

Tape Remaining: Lets you know how many hours and minutes are left on your tape.

Clock/Calendar: Allows you to record time and date on tape. Maintains current time and date for approximately one year using backup battery (included).

Other displays include: *RECORD*, *PAUSE*, *FFWD*, *REWIND*, *NO TAPE*, and *TAPE END* warning.

Auto Focus

Sophisticated infrared system keeps moving objects in focus, even in low light. Automatically maintains a sharp image—even during zooms. You can also focus manually using the focus ring.

Auto Iris

To assure correct exposure, the camcorder automatically responds to available light conditions and adjusts the aperture accordingly. Manual override is provided to correct for unusual lighting conditions, such as backlighting.

Video Features

62mm Full Size Headwheel

Many camcorders use a small 43mm headwheel (what the video heads are attached to). These small headwheels are smaller and lighter than the headwheels used in home VCR's, but

can be less stable, can cause picture degradation, and can sometimes affect playback compatibility.

The CC285 features a full-size 62mm headwheel—just like those used in the most expensive home VCR's.

Audio Features

Built-in Microphone with Wind Noise Filter

The camcorder features a sensitive built-in microphone to allow you to record sound as well as video.

A wind noise filter is included to cut down the rumbling background noise that can occur on windy days.

Convenience Features

Tally Light

A red light on the front of the camcorder lets your subject know when you are recording. Helps to eliminate videos that start with, "Is that recording yet?"

Self-Timer

The CC285 has a built-in self timer, similar to a 35mm camera. The self timer delays the start of the recording for 10 seconds (so that you can get in the picture), and can be set to record for 30 seconds, or continue recording until you stop it.

Earphone

An earphone is supplied for monitoring the audio when you record or play back tapes in your camcorder.

Quick Review

Automatically backs up the tape, plays the last few seconds of video, then recues the tape to the original position. Good for refreshing your memory of the last scene without losing your place on the tape.

Padded Shoulder Pad

The padded shoulder pad helps stabilize the camcorder, giving you smooth, professional-looking shots.

Use your Camcorder on AC or DC (battery) power.

An AC adapter/charger and a rechargeable battery are packed with your camcorder.

- The AC adapter/charger lets you power your camcorder from the nearest AC outlet.
- The rechargeable battery allows you to use your camcorder anywhere up to two hours.

You can purchase an optional DC cord and power your camcorder from your car's cigarette lighter socket. See pages 44 and 45 for optional accessories.

Optional Accessories

To further enhance your videos, a full line of compatible accessories is offered for your camcorder to increase your creative range. Some optional accessories are shown on pages 44 and 45.

What Your Camcorder Can Do For You

Your RCA camcorder combines the features of a video camera and of a VHS compact VCR in one lightweight, easy-to-use unit. As a result, you now can do all of the following:

Produce professional videos.

Your camcorder has all the features necessary to produce professional-looking videos quickly and easily.

- The power zoom lens lets you zoom in and out at the touch of a button.
- The macro switch allows you to focus as close as 1/4 inch from your subject.
- Choose automatic focus or manual focus when needed.
- Use automatic shutter speed or select one of the other faster speeds to record your favorite outdoor sporting event or fast-moving family action.
- Choose automatic iris control or manual control when you have an unusual lighting situation.
- The *FADE* button lets you fade in and out of a scene.
- Color balance is automatically controlled indoors and out.
- Check and review your recording quickly and easily in the electronic viewfinder.

Play back your tapes on a standard TV or monitor.

Cables included with your camcorder allow you to connect it to your TV or monitor and view your tapes.

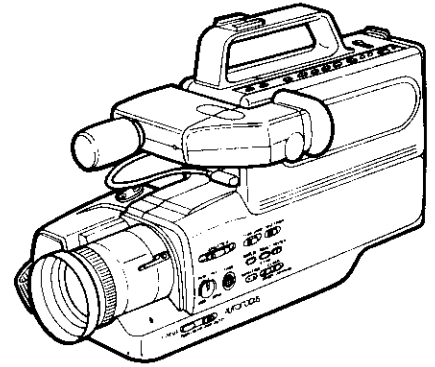
Make copies of your tapes to share.

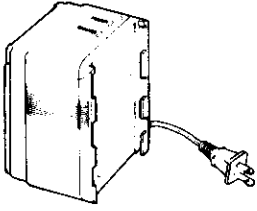


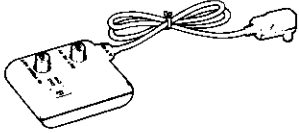
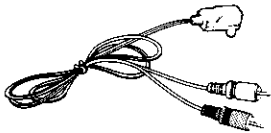
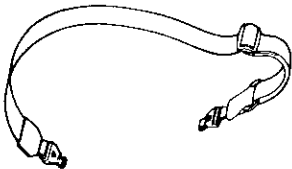
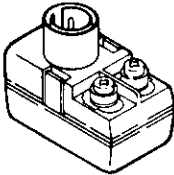
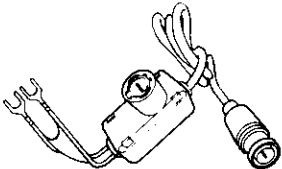
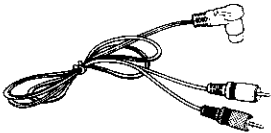

Cables included in your camcorder allow you to connect it to your home VCR and copy your home videos.

Unpacking Your Camcorder

- When you unpack the camcorder, make sure you remove all the accessories and information papers.
- Save the packing materials and box in case you ever need to ship or store your camcorder.
- The items shown below are packed with your camcorder. If any of the items are missing or appear damaged, contact your RCA dealer immediately.

Camcorder Model CC285

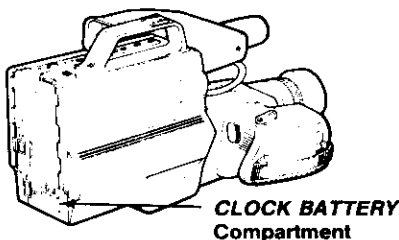


 <p>AC Adapter/Charger Stock # CPS09</p>	 <p>Rechargeable 9.6-Volt Battery Stock # BP96FL</p>	 <p>Earphone</p>	 <p>RF Output Adapter Stock # CRF030</p>
 <p>Audio/Video Output Cable Stock # 194128</p>	 <p>Shoulder Strap Stock # 184449</p>	 <p>Transformer (300-to-75 ohm) Stock # AH055</p>	 <p>Coaxial RF Cable Stock # 177233</p>
 <p>Audio/Video Input Cable Stock # VAA004</p>		 <p>Clock Battery 3-Volt Micro Lithium Cell (such as Maxell # CR2025 available from most local drugstores and camera shops)</p> <p>WARNING: Keep this battery away from children. If swallowed, consult a physician immediately for emergency treatment.</p>	

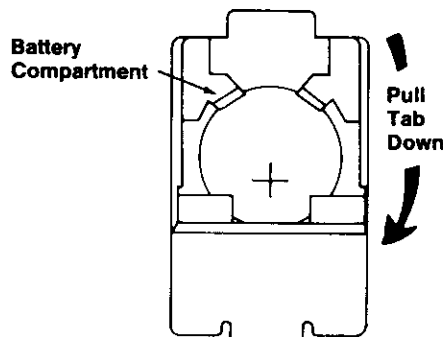
Installing Battery

You may want to install the clock battery immediately to prevent misplacing it.

1. Locate the **CLOCK BATTERY** compartment on the back of the camcorder.



2. Pull the tab to open the cover and expose the compartment.

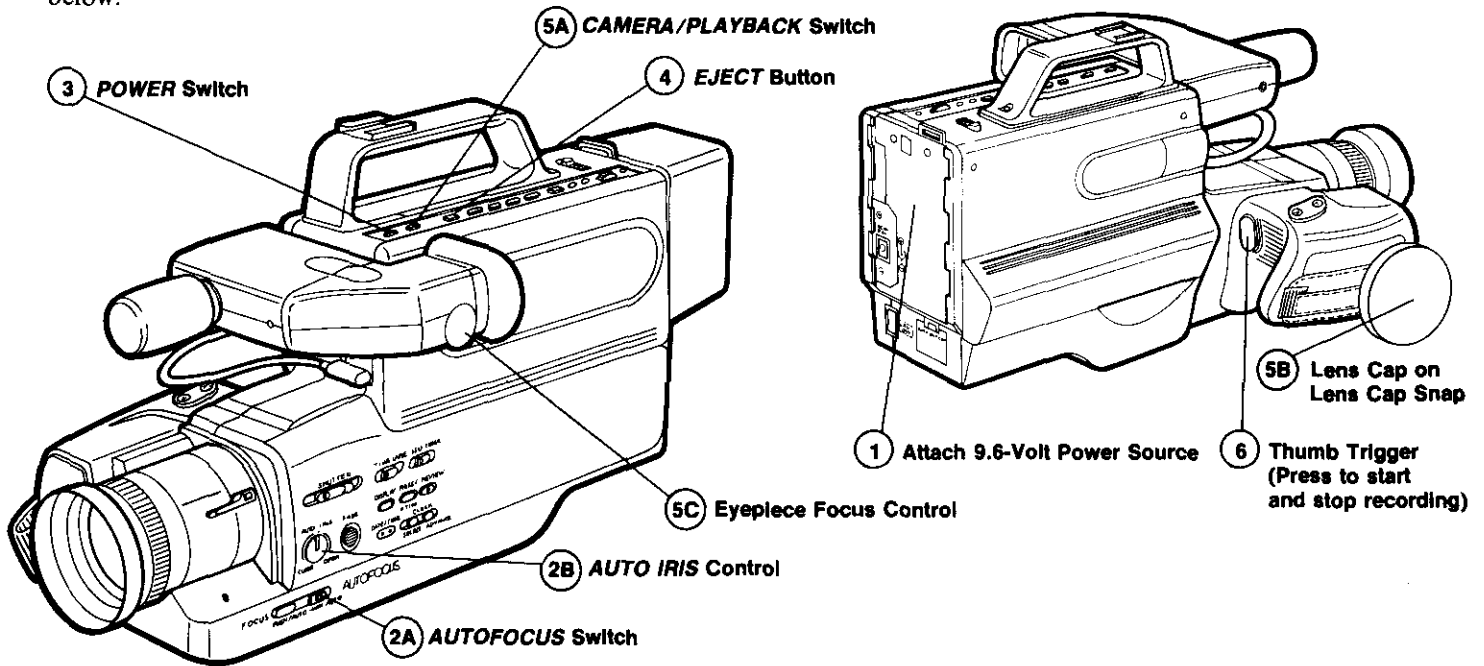


3. Insert the clock battery securely under the shoulders with the "+" terminal facing out (as illustrated inside the battery cover).
4. Gently push the cover closed until it snaps into place.

Instructions for setting the time and date are on page 22. You can do that later if desired after you're more familiar with your camcorder.

Quick Operation Steps

Even if you've never used a video camera or camcorder before, you can probably get your camcorder up and running quickly by following the steps below.



1 Attach power source to camcorder (either adapter/charger or battery).

A. Adapter/Charger:

1. Attach adapter/charger to camcorder. (Instructions are on page 14.)
2. Plug power cord into an AC outlet.

B. Charged Battery:

1. Charge the battery as described on page 15. Charging takes about two hours the first time.
2. Attach charged battery to camcorder. Instructions are on page 15.

2 Set controls to their automatic positions.

- A. Set the *AUTOFOCUS* switch to *AUTO*.
- B. Set the *AUTO IRIS* control to *AUTO* (top center "click" position).

3 Turn on camcorder. Slide the *POWER* switch to the "on" position. The indicator labeled *ON* will light.

4 Insert a cassette tape.

1. Press *EJECT* to open door.
2. Insert cassette as shown on page 17. Insert cassette only one way with record-protect tab facing up and the tape windows facing out.
3. Gently close the cassette door with your hand.

5 Prepare camcorder to record.

- A. Put the *CAMERA/PLAYBACK* switch in the *CAMERA* position for recording.
- B. Remove the lens cap and snap it on the lens cap snap on the hand strap.
- C. If image in viewfinder is out of focus, adjust the Eyepiece Focus Control.

6 Start recording. Press the thumb trigger record button to start and stop recording. You do not have to hold the trigger to record.

7 Review what you recorded.

1. Press the thumb trigger record button to stop recording.

2. Move *CAMERA/PLAYBACK* switch to *PLAYBACK* position.
3. Press *REW* button to rewind tape.
4. Press *PLAY* and watch the viewfinder to review what was recorded.

Notes:

- To continue recording after your review: press *STOP*, then move the *CAMERA/PLAYBACK* switch to *CAMERA*, and press the thumb trigger record button.
- Any material recorded on a cassette tape will be automatically erased if you record over it. So if you don't want to keep what you just recorded, press *REW* to rewind the tape and then record over the unwanted material. (The *CAMERA/PLAYBACK* switch must be in the *PLAYBACK* position to rewind the tape.)
- After using your camcorder for the first time, be sure to read the rest of the manual for full details of its special features, connection applications, accessories, and proper care.

Location and Use of Controls

Camcorder Operating Controls and Their Functions

Pages 6 thru 13 show you where camcorder controls are located and what they do. As you read the description of each control, find that control on your own camcorder to familiarize yourself with its location.

① Accessory Shoe

This fitting is used to attach a light or other lightweight video accessory to your camcorder.

CAUTION: Do not use this shoe to mount a light on the camcorder. Excessive heat from a light could damage the camcorder's case. RCA light #VDC050 (shown on page 45) is specially designed to be used with your camcorder.

② Tally Light

- This light will come on whenever the camcorder is recording.
- You will find it especially helpful during time-lapse and self-timer recordings.

③ Microphone

- The microphone picks up the sound during a recording. When an external microphone is connected to the *MIC* jack, this built-in microphone is muted.

④ Power Zoom Buttons (*W* and *T*)

- Press the button labeled *W* to move the zoom lens in the *Wide Angle* direction.
- Press the button labeled *T* to move the zoom lens in the *Telephoto* (close-up) direction.
- The zoom buttons are easily controlled by your index and middle fingers when you grasp the camcorder properly using the hand strap.

⑤ Macro Button (on Zoom Ring Lever)

- This button lets you take shots as close as 1/4 inch from your subject.
- First push in and hold the macro button while rotating the zoom ring ⑦ to the *MACRO* position. Then slowly rotate the zoom ring until the object is in sharp focus.

⑥ Zoom Ring Lever

- When you want to zoom in or out of a scene without using the power zoom buttons ④, you can grasp this lever and turn the zoom ring manually.
- The macro button ⑤ is located on the zoom ring lever. Use the macro button for close-up shots up to 1/4 inch from your subject.

⑦ Zoom Ring

- You can adjust the zoom ring manually by grasping the zoom ring lever and slowly rotating the zoom ring with your fingers for wide-angle or telephoto pictures.
- Pressing the power zoom buttons (labeled *W* and *T*) moves the zoom ring automatically without you touching it.

⑧ Focus Ring

- When the *AUTOFOCUS* switch is in the *MANUAL* position, you can grasp this ring and adjust focus as desired.
- When the *AUTOFOCUS* switch is in the *AUTO* position, the camcorder automatically rotates and adjusts the focus ring for the best picture focus.



⑨ Lens

Your camcorder is equipped with an f1.2, 6:1 power zoom lens which directs incoming light to the solid-state CCD image sensor. The image sensor converts the optical image to a video signal.

⑩ Auto Focus Window

- When the camcorder is in the AutoFocus mode (*AUTOFOCUS* switch in *AUTO* position), this window transmits and receives infrared light which is reflected off the subject. This allows the camera to focus itself automatically as the distance between the lens and the subject changes.

- Make sure you don't obstruct this window when recording with the camcorder in the AutoFocus mode.

⑪ *PUSH/AUTO* Focus Switch

When this switch is depressed and held in, automatic focus is activated and remains activated until the switch is released. This is useful if you are shooting a relatively static scene in *MANUAL FOCUS* and need to adjust for a change in scene by using *AUTO FOCUS* quickly and momentarily.

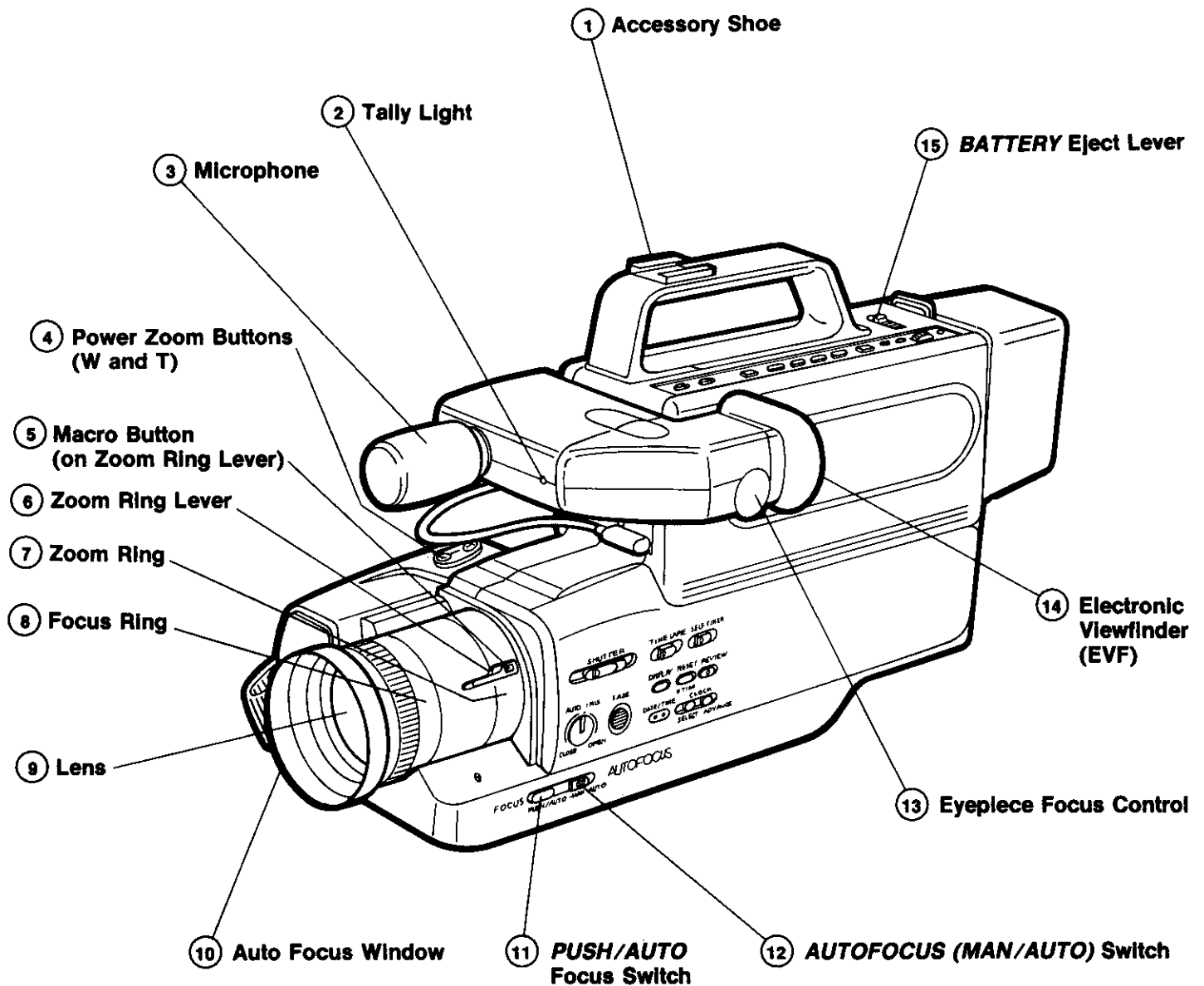
⑫ *AUTOFOCUS* Switch (*MAN/AUTO*)

- Set this switch to the *AUTO* position when you want the camcorder to focus for you automatically.
- Set switch to the *MAN* (manual) position when you want to focus manually by rotating the focus ring with your fingers.
- When switch is in its *MAN* (manual) position, you can also quickly change from Manual Focus to AutoFocus by pressing and holding the *PUSH/AUTO* focus switch. This is useful if you are shooting a relatively non-moving scene in *Manual Focus* and want to quickly and momentarily use *AutoFocus* for a change in scene. The camcorder will return to manual focus when you release the button.

⑬ Eyepiece Focus Control

- Use this control to adjust the focus in the viewfinder. It's easiest to set the correct focus by focusing on the viewfinder on-screen displays (such as the date, battery level, etc.).
- These adjustments will not affect the focus of the image recorded by the camcorder.
- This control permits most users who wear glasses to remove them while focusing the camcorder.

Location and Use of Controls (cont.)



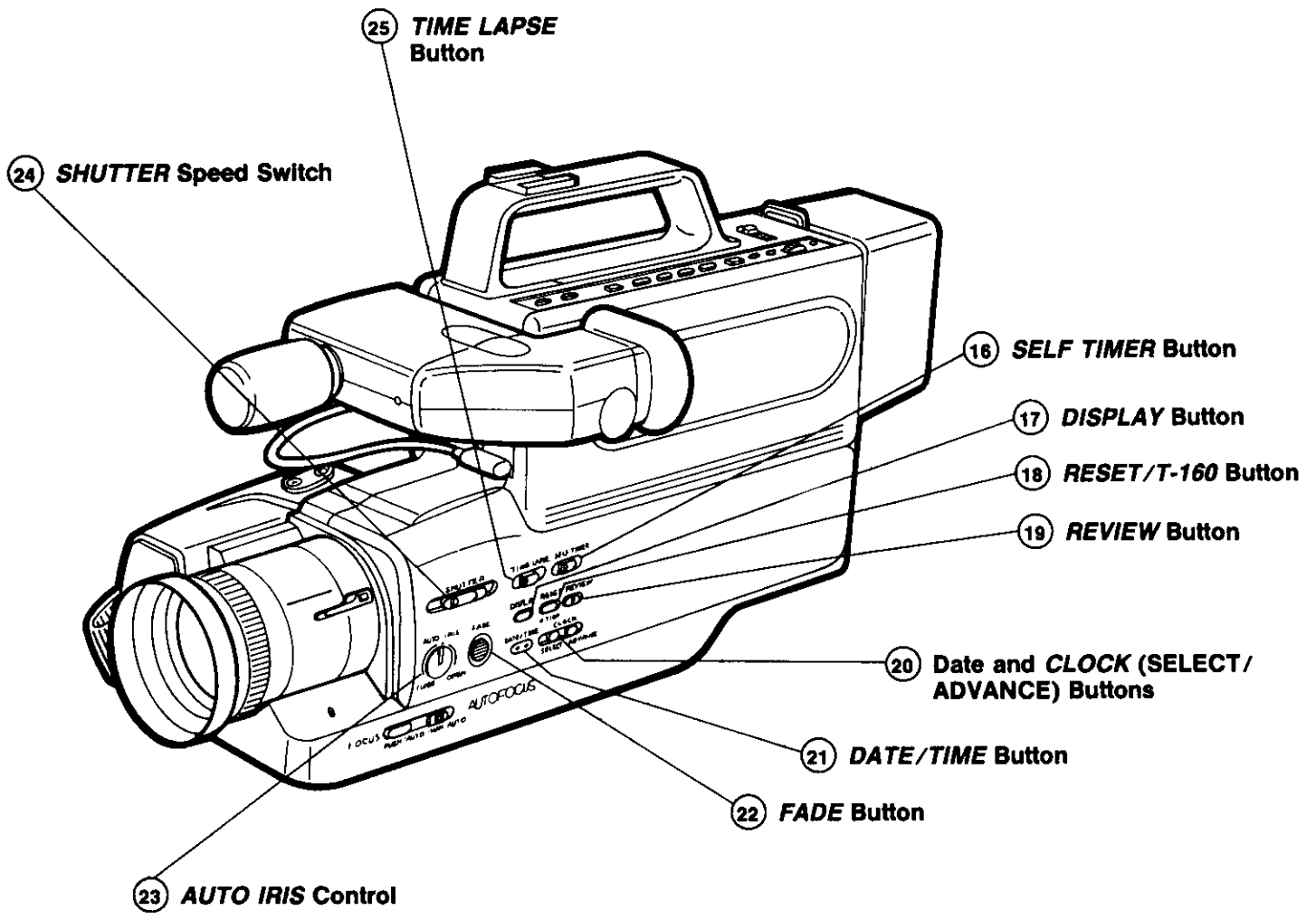
- 14 Electronic Viewfinder (EVF)**
- The viewfinder displays what the camcorder lens sees so you know what you're recording.
 - It also functions as a convenient black-and-white monitor during playback of recorded video.

- 15 BATTERY Eject Lever**
- Slide this lever to release the battery or the AC adapter/charger from the camcorder.

Location and Use of Controls (cont.)

- 16 SELF TIMER Button**
- This button lets you time-delay the start of a recording by about 10 seconds so you can join the picture without being seen walking into it.
 - Details are on page 29.
- 17 DISPLAY Button**
- Pressing this button brings the status indicators and displays to the screen in the viewfinder.
 - Press *DISPLAY* once to bring the Battery Level and Tape Counter displays to the viewfinder.
 - Press *DISPLAY* again to add the memory feature to the Tape Counter.
 - Press *DISPLAY* again to change the Tape-Counter display to the Time-Remaining Display.
 - Press *DISPLAY* again to remove the displays.
 - Details on using each display are on pages 26 and 27.
- 18 RESET/T-160 Button**
- When the tape counter is displayed in the viewfinder, pressing this button resets the counter to "0000".
 - When the time-remaining read-out is displayed, pressing this button changes the display for extended length T-160 tapes.
 - The indicator next to the T-160 button will light.
 - Details are on page 27.
- 19 REVIEW Button**
- Press this button while the camcorder is in the *Record/Pause* mode to view the last few seconds of a completed recording segment.
- 20 Date and CLOCK Set Buttons (SELECT and ADVANCE)**
- These buttons are used to set the clock (time and date) in your camcorder so it can be recorded on your tapes for future reference.
 - Details are on page 22.
- 21 DATE/TIME Button**
- Press this button to display the date and clock in the viewfinder.
 - Whenever the date and time appear in the viewfinder, they will be recorded on the tape.
 - Details are on page 22.
- 22 FADE Button**
- During recording you can add a professional touch to your recordings by fading in and out of scenes.
 - Details for using this button are on page 25.
 - When you use the *FADE* button to fade in and out, the sound will also fade in and out with the picture.
- 23 AUTO IRIS Control**
- With this control in the *center* "click" position, the camcorder automatically adjusts the lens opening for the best picture.
 - The lens iris opening can also be manually adjusted to compensate for these unusual lighting situations:
 1. When the subject is in bright light and the background is dark, turn this control counterclockwise to close the lens iris opening.
 2. When the background is in bright light and the subject appears too dark, adjust the control clockwise to open the lens iris.
 - Details are on page 25.
- 24 SHUTTER Speed Switch**
- The shutter speed is automatically set at the normal shutter speed of 1/60 whenever the camcorder's power is turned on.
 - Slide the *SHUTTER* speed switch to the right once to select a shutter speed of 1/500.
 - Slide the *SHUTTER* speed switch to the right a second time to select a shutter speed of 1/1000.
 - Slide the *SHUTTER* speed switch to the right a third time to return to the normal shutter speed of 1/60.
 - Higher shutter speeds are displayed in the electronic viewfinder. No shutter speed indicator appears when the normal (1/60) speed is selected.
 - If you need more light, the shutter speed indicator in the viewfinder will flash.
 - Details are on page 28.
- Note:** The higher the shutter speed, the less blurred fast-moving recorded action will appear during slow-motion and stop-action. Also, more light is required for higher shutter speeds.
- 25 TIME LAPSE Button**
- This button allows time lapse and animation recording.
 - Details are on pages 29 and 30.

Location and Use of Controls (cont.)



Location and Use of Controls (cont.)

26 MIC (External Microphone Jack)

- If you want to use an optional external microphone during recording, plug it into this jack.
- When an external microphone is connected to this jack, the built-in microphone is shut off automatically.

27 MIC Switch (WIND/NORMAL)

- This switch is used to reduce wind noise that may be picked up by the microphone.
- For normal use, place the switch in the *NORMAL* position.
- Place the switch in the *WIND* position if you are recording outside on a windy day.

28 Hand Strap with Lens Cap Snap

- This strap is designed to provide comfort and ease of operation while using the camcorder.
- Place the lens cover on the lens cap snap to keep it out of the way while recording.
- When your right hand is properly inserted through the strap, your fingers can easily control the Power Zoom buttons (4) and the Record Start/Stop thumb trigger (29).
- The strap is adjustable for a personalized fit.

29 Thumb Trigger (Record Start/Stop Button)

- When the *CAMERA/PLAYBACK* switch (6) is in the *CAMERA* position, press this thumb trigger to start and stop recording.
- You do not have to hold the thumb trigger to record. Just press it once and release it. The camcorder will continue to record until you press the trigger again.
- When you press the trigger to stop recording, the camcorder will enter the Record/Pause mode. If you do not plan to start recording again soon, you may want to turn off the camcorder by sliding the

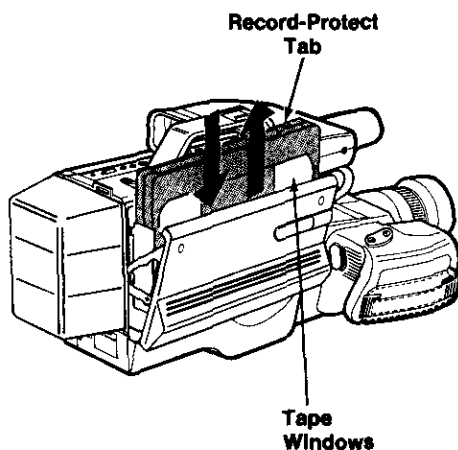
POWER switch. This will conserve your battery power if you are using the battery.

30 Cassette Door

- This door opens so you can insert and remove cassette tapes. The camcorder must be connected to a power source before the door will open.
- To open the cassette door, first attach the AC adapter/charger or a charged battery to the camcorder. Then press the *EJECT* button (36) on the top control panel, insert a VHS cassette, and gently close the door by hand.

Important Notes:

- Insert a tape cassette only one way as shown below: with record-protect tab facing up and tape windows facing out.



- *NEVER* attempt to force open the cassette door. If the battery reaches its empty level during recording, the camcorder will shut off. Normally there will be enough power left in the battery to eject the tape. If not, simply recharge the battery or power your camcorder with the AC adapter/charger before attempting to eject the tape.

31 CLOCK BATTERY Compartment

- After the clock battery is installed here as described on page 22, you can set the correct date and time in the camcorder's viewfinder display.
- The camcorder will automatically keep track of the correct day and time for approximately one year.
- Details are on page 22.

32 AV OUT Connector (Audio/Video Output)

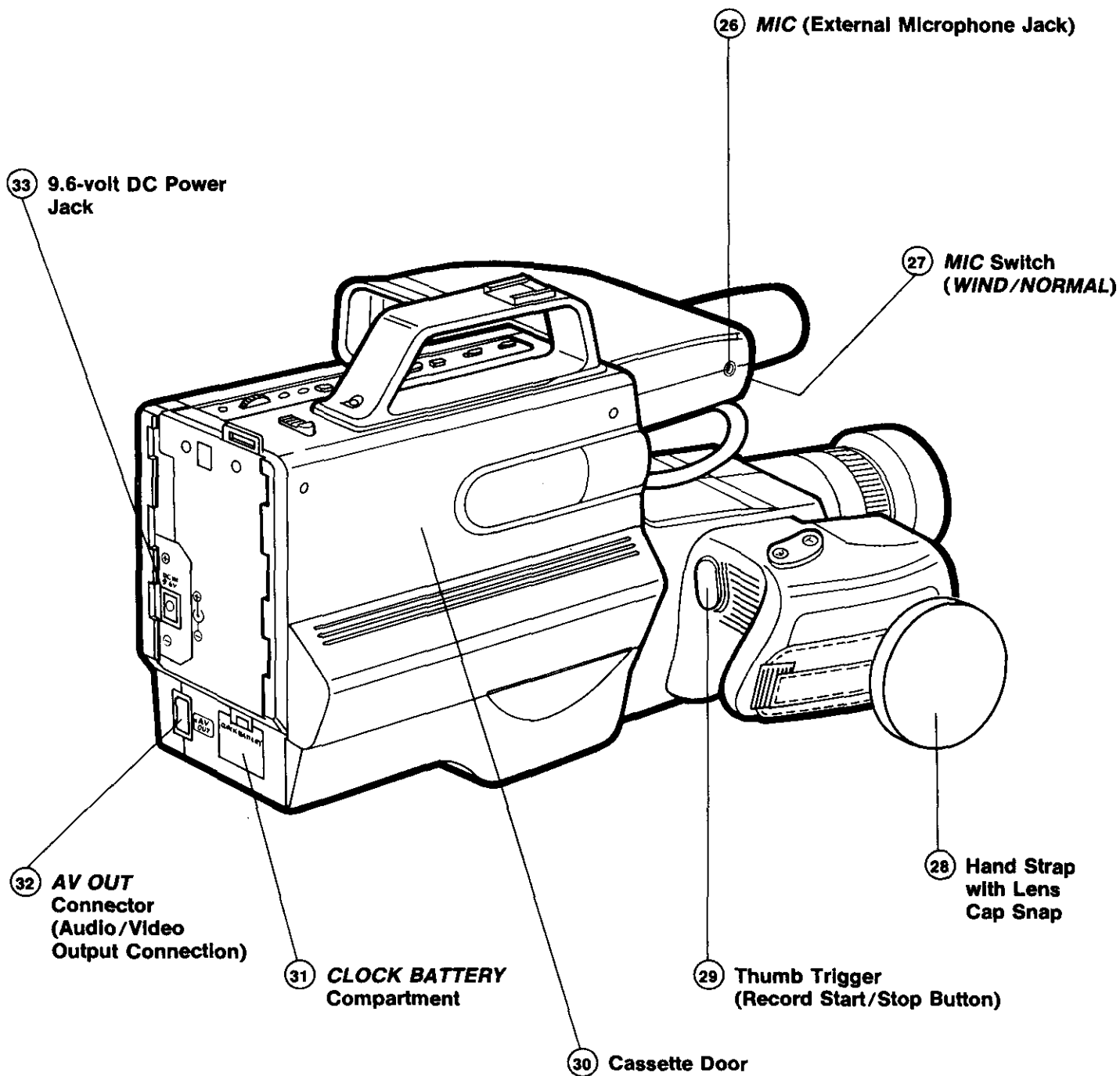
- Use this connector when you want to send signals out from the camcorder and into either a TV or a VCR.
- Connection instructions are on pages 36, 38, and 39.

33 DC Power Jack (DC IN 9.6V)

- This jack lets you operate your camcorder from the cigarette lighter socket of a car, truck, or RV (using the optional DCC096 power cord).

CAUTION: Do not use RCA car cord model DCC012 with this camcorder. To avoid damage to your camcorder, make sure the car cord you plan to use has positive tip polarity and is capable of carrying a 12-volt negative ground electrical system. The DC IN 9.6V RCA car cord model DCC096 is designed specifically for this camcorder.

Location and Use of Controls (cont.)



Location and Use of Controls (cont.)

34 POWER Switch

- This switch turns the camcorder's power on and off. The *ON* indicator 35 will light when the camcorder is on.
- To conserve battery power, you may want to turn off power between long breaks in recording.

35 Power ON Indicator (Also Dew Indicator)

- This indicator lights whenever the camcorder is turned on.
- The indicator will flash if there is excessive moisture (dew) inside your camcorder. An internal protection feature will prevent the camcorder from operating until the moisture is gone. Leave the power on and when the light stops flashing, the camcorder can be operated.

36 EJECT Button

- Press this button to open the cassette door for tape insertion or removal.
- The camcorder must be attached to a power source (battery or AC adapter/charger) to open the door.

CAUTION: When the battery reaches its empty level during use, the camcorder will shut off. When this occurs there will normally be enough power left in the battery to eject the tape. If you do not attempt to eject the cassette door open. This will damage your camcorder. To remove the cassette, simply power your camcorder with the AC adapter/charger or recharge the battery before attempting to eject the tape.

37 PLAY Button

- To play back recorded material, first slide the *CAMERA/PLAYBACK* switch to the *PLAYBACK* position, and then press *REW* to rewind the tape. Press *PLAY* to start playback.
- When the *CAMERA/PLAYBACK* switch is in the *CAMERA* position and the camcorder is in the Record/Pause mode, pressing and holding *PLAY* will play the tape at normal

playback speed. This is handy after you've scanned backwards to review parts of a recent recording.

38 STOP Button

- Press the *STOP* button to stop the camcorder when it's playing back a tape, rewinding, or fast forwarding.
- This button has no effect during recording. To stop recording, press the thumb trigger 29 or press *PAUSE* button 39.

39 PAUSE Button

- Press this button when the camcorder is playing back a tape to display a stop-action "still" picture. To return to normal play, press *PAUSE* again.
- Press this button when the camcorder is recording to pause the recording.
- Pause is designed for momentary interruptions and should not be used for an extended period of time. If the camcorder remains in the pause mode for more than five minutes, the camcorder will automatically move the tape away from the spinning heads to prevent excessive tape wear.

40 TRACKING Control

- You will normally only use the *TRACKING* control if you play tapes in your camcorder that were recorded on another VCR.
- If you play a tape that was not recorded on your camcorder, streaks may appear if the recorded tracks on the tape don't align precisely with the playback heads. To remove the streaks and align the heads with the tape tracks, slowly turn the *TRACKING* control in either direction until the streaks disappear.
- The *TRACKING* control will have to be adjusted back to its original position when you play your regular home-recorded tapes again.
- The *TRACKING* control has no effect during recording.

41 EAR (Earphone) Jack

- You can plug the supplied earphone into this jack for private listening during recording or playback.

42 VIDEO DUB Button

- This button is used to record new video in place of existing video without erasing the audio.
- Details are on page 35.

43 AUDIO DUB Button

- This button is used to record new audio in place of existing audio without erasing the video.
- Details are on page 34.

44 F.FWD (Fast Forward) Button

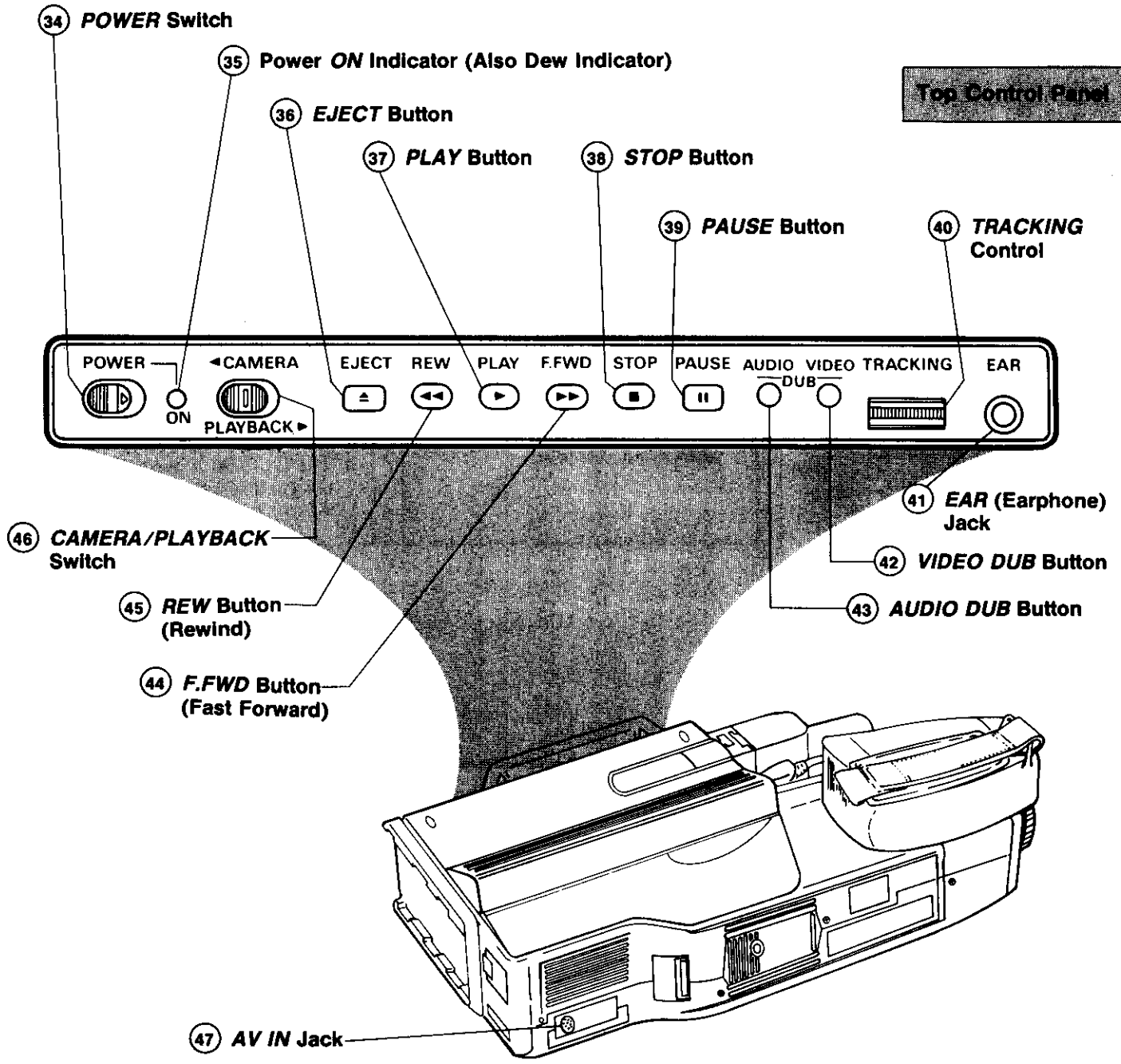
- When the *CAMERA/PLAYBACK* switch is in the *PLAYBACK* position and the camcorder is stopped, pressing *F.FWD* will quickly advance (fast forward) the tape. No picture will appear in the viewfinder.
- If you press and hold the *F.FWD* button when the camcorder is playing a tape, you'll be able to visually scan the tape in fast motion. To return to normal playback, release the *F.FWD* button.
- You can also visually scan forward when the camcorder is in Record/Pause mode by pressing and holding *F.FWD*.

45 REW (Rewind) Button

- When the *CAMERA/PLAYBACK* switch is in the *PLAYBACK* position and the camcorder is stopped, pressing *REW* will rewind the tape. No picture will appear in the viewfinder.
- If you press and hold the *REW* button when the camcorder is playing a tape, you'll be able to visually scan the tape in reverse fast motion. To return to normal playback, release the *REW* button.
- You can also visually scan backwards when the camcorder is in Record/Pause mode by pressing and holding *REW*. This lets you "back up" the tape so that you can start a new scene without a "gap" in the tape.

Location and Use of Controls (cont.)

Top Control Panel



46 CAMERA/PLAYBACK Switch

- Because your camcorder is both a camera and a portable VCR, it performs two completely separate groups of functions. This switch tells the camcorder when you want to record (with the camera functions) and when you want to play back tapes (with the VCR functions).

- When you slide this switch to the *CAMERA* position, the camcorder prepares itself for recording and enters the record/pause mode.
- When you slide this switch to the *PLAYBACK* position, the camcorder prepares itself to playback tapes using the VCR functions.

47 AV IN Jack

- Use this connector jack when you want to send signals from another device *into* your camcorder for recording.
- You will be able to record from a TV monitor, VCR, or another camcorder. Connection instructions are on pages 36 and 37.

Powering Camcorder

How To Power Your Camcorder

You can power your camcorder three different ways:

A.

AC Adapter/Charger

- The adapter/charger connects to the camcorder and plugs into a wall outlet. It lets you power the camcorder off normal household power (120 volts AC, 50/60 Hz).

CAUTION: If you wish to operate the AC adapter/charger on a power source other than 120 volts, 50/60 Hz, use *only a transformer-type* power converter. Do not use "solid-state" or "switching-type" power converters. They will damage your AC adapter/charger. An optional CPS08 adapter/charger may be purchased from your RCA dealer. The CPS08 is designed for use on 100-240 volts, 50/60 Hz. See pages 44-45 for optional accessories.

B.

Rechargeable Battery

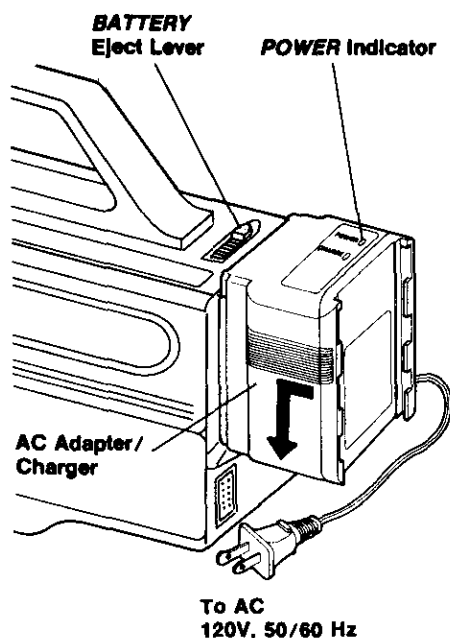
- The rechargeable 9.6-volt battery lets you record outdoors or anytime you're away from electrical outlets.
- The supplied battery can be charged and then connected to the camcorder for portable use indoors or outdoors.

C.

Optional DC Car Cord

- The optional DC car cord lets you power the camcorder from the cigarette lighter socket of a car, truck, or RV.
- You can also use the DC car cord to connect your camcorder to a long-play battery.
- The DCC096 is specially designed to convert 12-volts to 9.6-volts.

A. Using the Adapter/Charger to Power Your Camcorder



Attaching Adapter/Charger to Camcorder

1. Align the reference arrow on the adapter/charger with the arrow on the back of the camcorder.
2. While holding the adapter/charger flush against the back of the camcorder, slide it down in the direction of the arrow as shown.
3. Plug the adapter/charger into the nearest AC outlet (120V, 50/60 Hz).
4. If the adapter/charger is properly connected, its **POWER** indicator should light.
5. To remove the adapter/charger, first unplug it from the wall outlet. Then slide and hold the **BATTERY Eject Lever** while sliding the adapter/charger up and off the camcorder.

Note: Do not use the adapter/charger on a power source other than 120 volts, 50/60 Hz. Use only a transformer-type power converter. Do not use "solid-state" or "switching-type" power converters. They will damage your AC adapter/charger. An optional CPS08 adapter/charger may be purchased from your RCA dealer. The CPS08 is designed for use on 100-240 volts, 50/60 Hz. See pages 44-45 for optional accessories.

CAUTION: If you wish to operate the AC adapter/charger on a power source other than 120 volts, 50/60 Hz, use *only a transformer-type* power converter. Do not use "solid-state" or "switching-type" power converters. They will damage your AC adapter/charger. An optional CPS08 adapter/charger may be purchased from your RCA dealer. The CPS08 is designed for use on 100-240 volts, 50/60 Hz. See pages 44-45 for optional accessories.

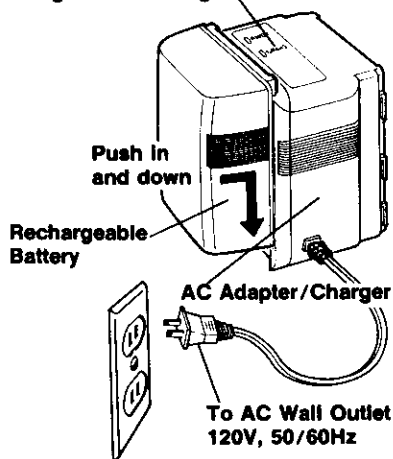
Powering Camcorder (cont.)

B. Using Battery to Power Your Camcorder

Charging The Battery

You will have to charge the battery before you use it the first time. Initial charging will take approximately two hours. When fully charged, the battery should supply about two hours of operating time (depending on how much you use zoom and pause).

Charge Indicator Light



1. Attach the battery to the adapter/charger as shown above. Align the reference arrow on the battery with the arrow on the back of the adapter/charger. Then push the battery flush with the adapter/charger and slide it downward.

Note: You must remove the adapter/charger from the camcorder to charge the battery.

CAUTION: When a battery is attached to the adapter/charger, do not turn them upside down. The battery may fall off and be damaged or cause injury.

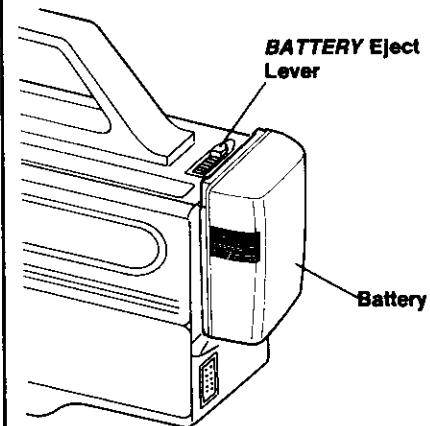
2. Plug the adapter/charger into the nearest AC outlet (120V, 50/60 Hz).
3. The Charge Indicator will light while the battery is being charged. When the light goes out, the battery is fully charged.

4. Remove the battery from the adapter/charger by sliding the battery up and off.
5. Attach the charged battery to the camcorder as shown below.

Notes:

- **CAUTION:** If you wish to operate the AC adapter/charger on a power source other than 120 volts, 50/60 Hz, use *only a transformer-type* power converter. Do not use "solid-state" or "switching-type" power converters. They will damage your AC adapter/charger. An optional CPS08 adapter/charger may be purchased from your RCA dealer. The CPS08 is designed for use on 100-240 volts, 50/60 Hz. See pages 44-45 for optional accessories.
- Recharging takes approximately two hours depending on the battery's condition. After repeated charging and use, operation time will gradually decrease. When operation time becomes too short to be useful, it's time to replace the battery.
- You cannot charge the battery and operate the camcorder from the adapter/charger at the same time. Remove the adapter/charger from the camcorder to charge the battery.
- When a battery (which has become very hot) is attached to the AC adapter/charger, the power indicator on the AC adapter/charger flashes. If this happens, unplug the AC adapter/charger from the AC wall outlet for approximately ten seconds. After that period the power cord may be plugged back into the AC outlet. Attaching an extremely hot battery to the AC adapter/charger is not recommended; it should be allowed to cool down before being attached.

Attaching Charged Battery to Camcorder

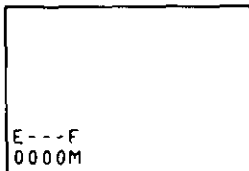


1. Align the reference arrow on the battery with the arrow on the back of the camcorder.
2. Push the battery flush against the camcorder and slide it downward as shown.
3. Slide the camcorder's **POWER** switch to the on position. If the battery is properly connected, the **ON** indicator will light.
4. To remove the battery, slide and hold the **BATTERY Eject Lever** while sliding the battery up and off.

Powering Camcorder (cont.)

Checking Battery Power

When you are using a battery to power your camcorder, you can see how much battery power is left by checking the Battery Level Indicator (E---F) in the viewfinder.



Pressing the *DISPLAY* button on the side of the camcorder will display the Battery Level Indicator. If desired, you can keep this indicator in the viewfinder while you are

recording because it will not be recorded on the tape. To remove the indicator, repeatedly press the *DISPLAY* button until it disappears.

- When the battery is fully charged, the display reads "E---F".
- After several minutes only two dashes appear.
- When the battery is nearly empty, only one dash remains.
- When the last dash starts flashing, you should find an alternative power source or recharge the battery before continuing to use your camcorder.

CAUTION:

When the battery reaches its empty level during use, the camcorder will shut off. However, the battery should have enough reserve power to eject the cassette when you press the *EJECT* button.

If the camcorder does not eject the cassette when you press *EJECT*, do not attempt to force the cassette door open. This will damage your camcorder.

To remove the cassette, simply power your camcorder with the adapter/charger or recharge the battery before attempting to eject the tape.

C. Using the Optional DC Car Cord to Power Your Camcorder

To power your camcorder from the cigarette lighter socket of a car, truck, or RV, you will need the optional car cord (model DCC096).

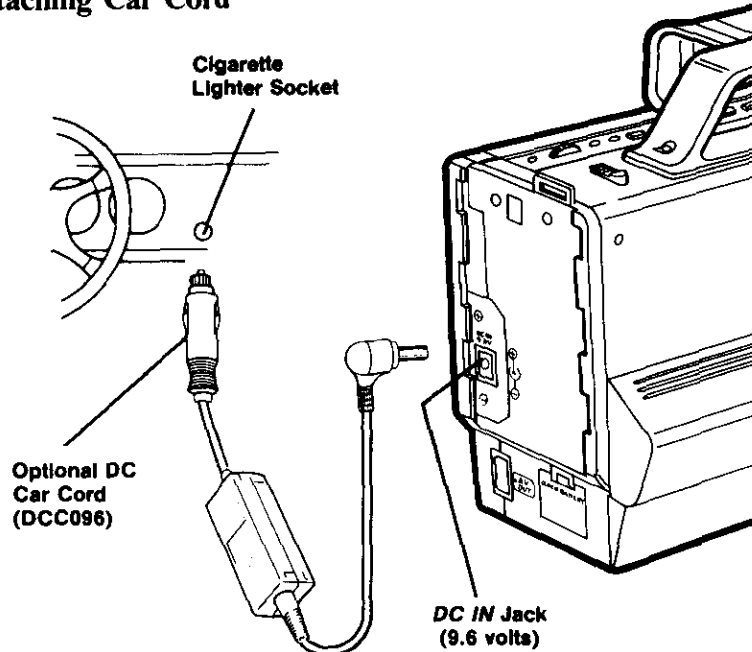
Car cord DCC096 is especially designed to convert power from a 12-volt car battery to the 9.6-volt input jack on the camcorder.

Important: Do not use RCA car cord DCC012 with your camcorder. The DCC012 is not capable of converting 12-volts to 9.6-volts and will damage your camcorder.

CAUTION: The DCC096 car cord is designed to be used only with vehicles having negative ground electrical systems.

WARNING: To avoid possible damage to your camcorder, make sure the vehicle you plan to use has positive and negative polarity and is capable of converting 12-volts to 9.6-volts such as RCA model DCC096.

Attaching Car Cord



1. Remove the adapter/charger or battery from the camcorder if either is connected.
2. Connect the small plug on the Car Cord to the *DC IN* jack located on the back of the camcorder.
3. Insert the other end of the car cord into the vehicle's cigarette lighter socket.
4. Slide the camcorder's *POWER* switch to its on position. If the car cord is properly connected, the *POWER ON* indicator should light.

Note: Your car does not have to be turned on for the camcorder to operate.

RCA Video Cassettes

Video Cassettes

We recommend that RCA cassettes be used with your camcorder. The tape in these cassettes is of high-quality formulation. It has been manufactured to our critical specifications for excellent performance. Use of tape not meeting these specifications could considerably reduce the performance of your camcorder.

Use of poor quality tapes or tapes that have been damaged or mishandled can contaminate the video heads, resulting in a snowy picture or no picture at all during playback. Because there is no control over the type of tape purchased or rented by consumers, **head cleaning is not covered under warranty.** It is considered normal maintenance.

Playing a new RCA tape for approximately 30 minutes will often satisfactorily clean the heads and improve your picture. If a snowy picture or no-picture condition persists, consider the use of a chemical non-abrasive head cleaning tape (RCA Stock No. AV009W) available from your dealer or many electronic supply stores. Be sure to follow the directions with the head cleaning kit carefully. Improper use of a head cleaner may damage your camcorder.



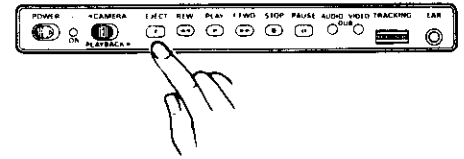
Recording Time

The camcorder records and plays back in VHS standard speed (SP). Listed below are the maximum SP recording times for popular VHS cassettes.

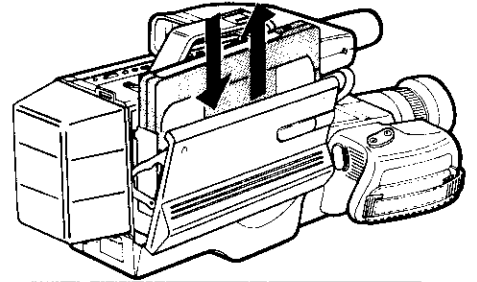
CASSETTE	RECORDING TIME
T-60	60 Min.
T-120	2 Hrs.
T-160	2 Hrs., 40 Min.

Inserting/Removing Cassettes

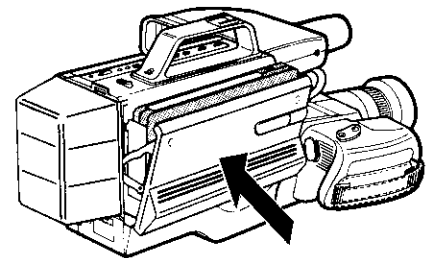
1. Attach power source to camcorder (either the AC Adapter/Charger or a charged battery).
2. Press *EJECT* button.
3. Insert or remove cassette.



CAUTION: Insert cassette only one way with record-protect tab facing up and tape windows facing out. Tape should fit easily in compartment. **Do Not Force.** Check position if insertion is not easy.

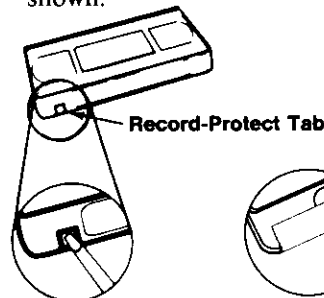


4. Gently close cassette compartment with your hand.

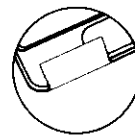


Erase Protection

- You can use your video cassettes over and over again. To erase a previous recording, just record over it.
- To prevent erasing a recording you want to keep, remove the record-protect tab from the back of the cassette as shown below. Recording is impossible when this tab is removed.
- To record again on a cassette that has the tab removed, simply cover the hole with vinyl tape as shown.



To prevent accidental erasure, break the tab.



To record again, cover the hole with vinyl tape.

Cassette Care and Storage

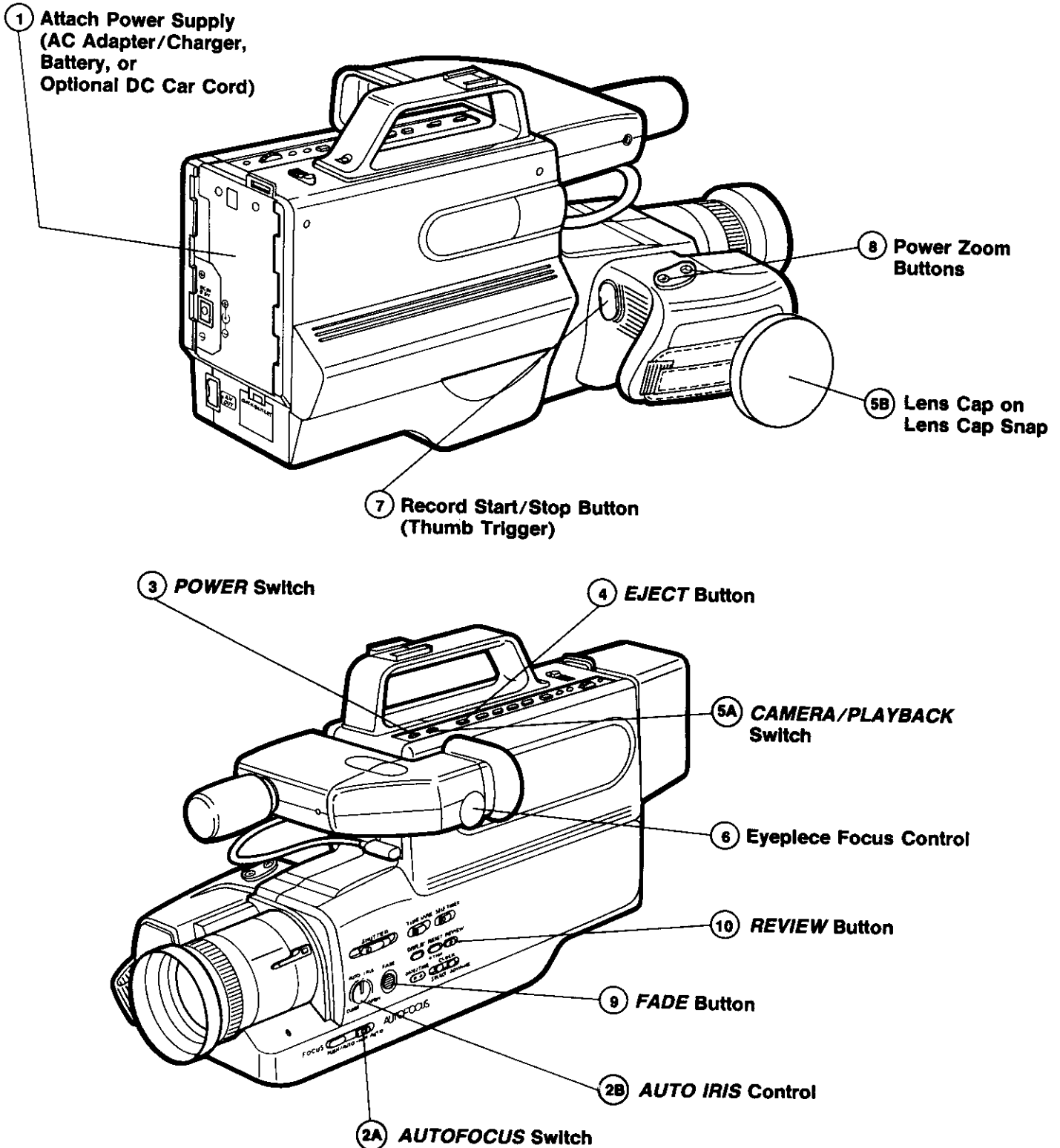
Follow these directions for continued high-quality performance from your cassettes.

- When you are finished with a cassette, rewind it and remove it from the camcorder.
- Store cassettes vertically in their protective boxes at normal room temperatures. Avoid extreme heat and humidity. Extreme heat can warp the cassette or cause the tape to stretch excessively. Keep away from strong magnetic fields such as electric motors and other devices.
- Be especially careful to keep dust from entering the cassette compartment. All dust is abrasive and it will cause excessive wear of both the tape and the camcorder's recording/playback heads.

Detailed Recording Steps

How To Record With Your Camcorder

Use the following steps to make a recording using the automatic control settings. See the individual control features on the following pages for manual operation.



Detailed Recording Steps (cont.)

- ① **Attach power source to camcorder.**
Detailed instructions for attaching the adapter/charger, battery, or optional DC car cord are on pages 14-16.
- ② **Set controls to their automatic positions.**
 - A. Set the *AUTOFOCUS* switch to *AUTO*.
 - B. Set the *AUTO IRIS* control to *AUTO* (top center "click" position).
- ③ **Turn on camcorder.**
Slide the *POWER* switch to the "on" position. The indicator labeled "ON" will light.
- ④ **Insert a cassette tape.**
 1. Press *EJECT* to open door.
 2. Insert cassette as shown on page 17. Insert cassette only one way with record-protect tab facing up and the tape windows facing out.
 3. Gently close the cassette door with your hand.
- ⑤ **Prepare camcorder to record.**
 - A. Put the *CAMERA/PLAYBACK* switch in the *CAMERA* position for recording.
 - B. Remove the lens cap, and snap it on the lens cap snap.
- ⑥ **Select your scene.**
Put your eye to the viewfinder. Remember to adjust the eyepiece focus control for your vision.
- ⑦ **To start and pause recording:**
 - Press the record start/stop button (thumb trigger) to start recording. You do not have to hold the trigger to record.
- Once you've started recording, you can pause recording by either pressing the thumb trigger again or by pressing the *PAUSE* button. To resume recording, press *PAUSE* again or press the trigger again.
Note: If the camcorder is connected to a TV, you can also watch what the camcorder is recording and playing back on the TV screen. Connection instructions are on pages 36, 38, and 39.
- ⑧ **Zoom in and out as desired.**
 - Press "T" to zoom in.
 - Press "W" to zoom out.
- ⑨ **Fade in and out as desired.**
 - To fade in, hold *FADE* button and press thumb trigger to start recording. Then release *FADE* button after a few seconds.
 - To fade out, hold *FADE* button and press thumb trigger to stop recording. After recording stops, release *FADE* button.
- ⑩ **To quick-review recording:**
 - You can review the last few seconds of recorded material by pressing the *REVIEW* button while the camcorder is in the pause mode.
 - After your review, press the thumb trigger (or *PAUSE*) to continue recording.
- ⑪ **To rewind and review recording:**
 1. Press the thumb trigger (or *PAUSE*) to stop recording.
 2. Move *CAMERA/PLAYBACK* switch to *PLAYBACK* position.
 3. Press *REW* (Rewind) to rewind tape.
 4. Press *STOP* to stop rewinding.
 5. Press *PLAY* and watch the viewfinder to review what was recorded.
Note: If the camcorder is connected to a TV, you can also watch what the camcorder is recording and playing back on the TV screen. Connection instructions are on pages 36, 38 and 39.
- ⑫ **To complete recording:**
 - Press the thumb trigger to pause recording (or if camcorder is playing back your tape, press *STOP*).
 - Put *CAMERA/PLAYBACK* switch in *PLAYBACK* position.
 - Press *REWIND* to rewind tape.
 - Press *EJECT* to eject tape. Remove tape and gently close the door with your hand.
 - Slide *POWER* switch to turn off camcorder. Power light will go out.

Remember: All of your camcorder's special recording features are described on the following pages. These will give you detailed information about using each of your camcorder's recording displays and special functions.

Recording Features

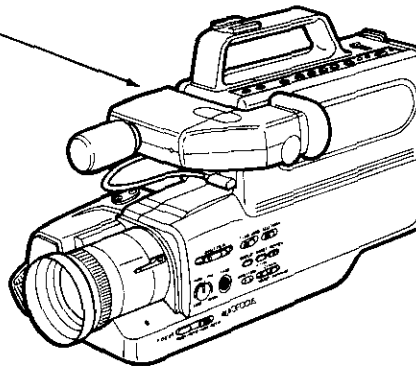
Using Your Camcorder's Recording Features

The steps listed on pages 18 and 19 give you the basics of recording. You should also get to know the camcorder's special recording features that will help you make professional-looking recordings. These features can help you shoot like a pro—even if you've never used a video camera or recorder before.

Electronic Viewfinder (EVF)

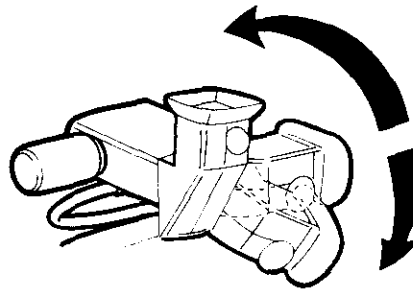
The camcorder's electronic viewfinder is a miniature black-and-white monitor that displays the picture seen by the camcorder when recording.

The viewfinder can also be used for viewing tape playback as described on page 40.



Tilt Adjustment

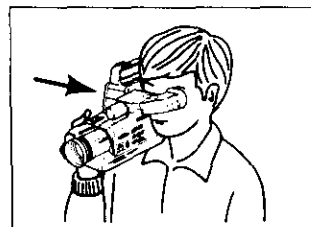
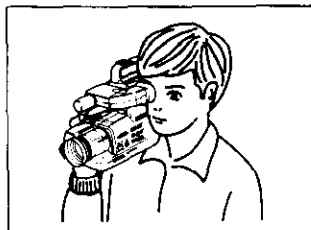
For convenient viewing, the viewfinder can be tilted about 90 degrees up and 45 degrees down.



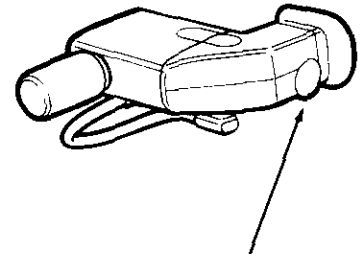
Adjusting for Right or Left Eye

The viewfinder also slides out from the camcorder so you can view it with either your right or left eye. To use your left eye, simply pull the viewfinder out from the camcorder.

You can reverse the rubber eyecup when using the viewfinder with your left eye. Simply remove it and turn it upside down.



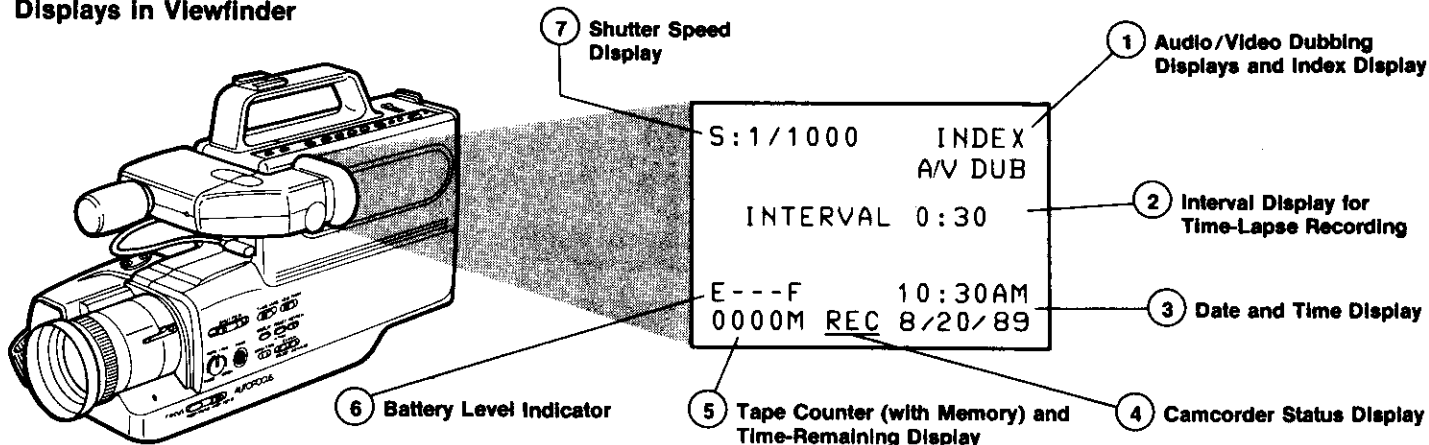
Eyepiece Focus Control



- The Eyepiece Focus Control lets you set the focus of the viewfinder for your personal vision.
- If you wear eyeglasses, you can probably operate the camcorder without them if desired. Remove your eyeglasses and look through the viewfinder while adjusting the Eyepiece Focus Control.
- It's easiest to set the correct focus by focusing on one of the viewfinder's on-screen displays (such as the date or battery level).
- The Eyepiece Focus Control does not affect the focus of the image actually recorded by your camcorder.

Recording Features (cont.)

Displays in Viewfinder



1 Audio/Video Dubbing Displays and Index Display

- Appear during dubbing to let you know the original audio and/or video tracks are being erased and replaced. Details are on pages 34 and 35.
- The word *INDEX* also appears here during indexing. Details are on page 31.

2 Interval Display for Time-Lapse Recording

- This display is controlled by the *TIME LAPSE* button which allows intermittent recording.
- Complete information is on pages 29 and 30.

3 Date and Time Display

- Press the *DATE/TIME* button to bring this display to the viewfinder.
- Whenever the date and/or time is displayed in the viewfinder, it will be recorded on your tape.
- Detailed information is on page 22.

4 Camcorder Status Display

- One of the following displays will appear here to let you know what the camcorder is doing.
- *REC* appears when the camcorder is recording.
- *FAST FWD* appears when the tape is fast forwarding.
- *REWIND* appears when the tape is rewinding.
- *PAUSE* appears when either the thumb trigger (or *PAUSE* button) is pressed to stop recording.

- *STANDBY* may appear briefly when camcorder is preparing itself to record.

5 Tape Counter (with Memory) and Time-Remaining Display

- When you press the *DISPLAY* button once, the Tape Counter appears under the Battery Level Indicator. Pressing *DISPLAY* again adds the memory feature to the Tape Counter.
- To see the Time-Remaining display, press the *DISPLAY* button again.
- Pressing *DISPLAY* a fourth time removes the displays.
- Details about using the Tape Counter and Memory are on page 27.
- Details about using the Time-Remaining display are on page 27.

6 Battery Level Indicator

- The battery indicator appears when the *DISPLAY* button is pressed. It lets you know when your battery needs to be recharged.
- Details are on page 15.

7 Shutter Speed Display

- This display is controlled by the *SHUTTER* speed switch.
- The speed is automatically set to normal (1/60) whenever the camcorder is turned on.
- Slide the *SHUTTER* speed switch to the right once to select a shutter speed of 1/500.

- Slide the *SHUTTER* speed switch to the right a second time to select a shutter speed of 1/1000.
- Slide the *SHUTTER* speed switch to the right a third time to return to the normal shutter speed (1/60).
- When you select a shutter speed of 1/500 or 1/1000, it will be displayed in the viewfinder. No shutter speed appears when the normal speed of 1/60 is being used.
- Higher shutter speeds require more light. The shutter speed display will flash when you need more light.
- Details are on page 28.

Notes:

A flashing "*TAPE*" display appears briefly in the viewfinder when:

- There is no cassette in the camcorder and you put the *CAMERA/PLAYBACK* switch in the *CAMERA* position or press the thumb trigger to begin recording.
- The record-protect tab has been removed from the cassette and you press the thumb trigger to begin recording.

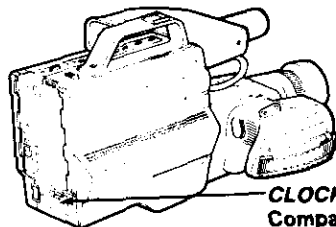
A flashing "*TAPE END*" display appears briefly in the viewfinder when:

- There is less than five minutes recording time left on the cassette.
- When the end of the cassette is reached during recording.
- When you press the thumb trigger to record and have reached the end of the cassette.

Recording Features (cont.)

Installing Battery for Time/Date Display

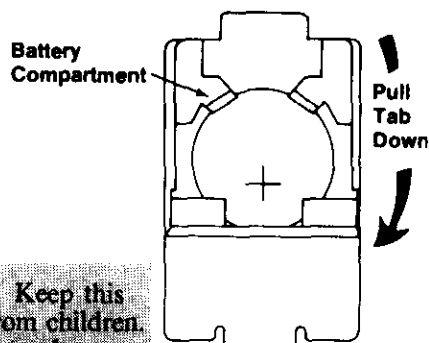
1. Locate the *CLOCK BATTERY* compartment on the back of the camcorder.
2. Pull the tab to open the cover and expose the compartment.
3. Insert the clock battery securely under the shoulders with the "+" terminal facing out (as illustrated inside the battery cover).
4. Gently push the cover closed until it snaps into place.



CLOCK BATTERY Compartment

Battery Type: 3-Volt Micro Lithium Cell (such as Maxell #CR2025 available from most local drug stores and camera shops)

WARNING: Keep this battery away from children. If swallowed, consult a physician immediately for emergency treatment.



Setting Time/Date Display in Viewfinder

The time and/or date can be recorded on your tape to act as a handy reference for later viewing.

Whenever the time and/or date appears in the viewfinder, it will be recorded on the tape. You can choose to record only the date, both date and time, or neither.

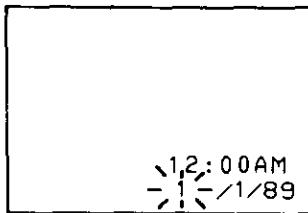
Follow the steps below to set the correct time and date.

1. Install the battery as described above.
2. Locate the *DATE/TIME* and *CLOCK* (*SELECT* and *ADVANCE*) buttons located on the side of the camcorder.

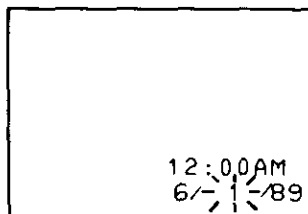


3. Slide *POWER* switch to turn on camcorder.
4. Slide *CAMERA/PLAYBACK* switch to *CAMERA* position.
5. If the date and time display does not automatically appear in the viewfinder, press the *DATE/TIME* button on the side of the camcorder.

6. A flashing cursor lets you know which part of the display you're setting. Repeatedly press the *ADVANCE* button until the correct month appears.



7. Then press *SELECT*. The cursor will move to the next part of the display.



8. Repeat steps 6 and 7 to set the correct day, year, hour, minute, and AM/PM.
9. After setting AM or PM, press the *SELECT* button again to erase the flashing cursor and start the internal clock.

Notes:

- To correct a part of the display, press the *SELECT* button until the incorrect digit is flashing. Then use the *ADVANCE* button to enter the correct digit.

Remember: If you see the date and/or time in the viewfinder while you are recording a scene, it will be recorded onto your tape. If you do not want the date and/or time recorded, repeatedly press the *DATE/TIME* button until they disappear from the viewfinder.

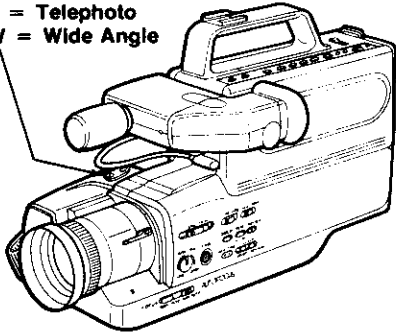
Press <i>DATE/TIME</i> Button	To Display and Record
One Time	Clock and Date
Two Times	Date Only
Three Times	No Display
Four Times	Returns to Clock and Date

Recording Features (cont.)

Zooming

Using Power Zoom Buttons

Zoom Buttons
T = Telephoto
W = Wide Angle



The 6:1 motorized zoom lens allows you to zoom in and out for close-ups or wide-angle shots just by pressing one of the Power Zoom fingertip controls.

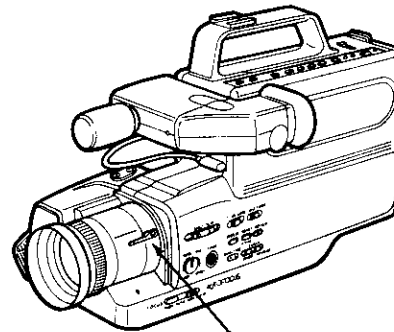
The zoom buttons are easily controlled by your index and middle fingers when you grasp the camcorder properly through the hand strap.



- Press the button labeled "T" to move the lens in the "telephoto" (close-up) direction.
- Press "W" to move the lens in the "wide angle" direction.

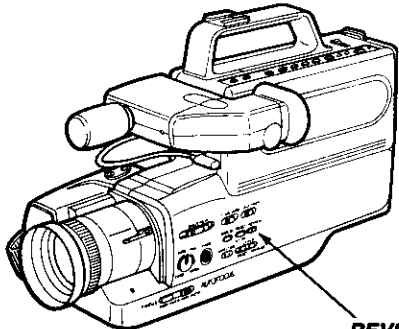
Using Zoom Ring Manually

When you want to zoom in or out of a scene without using the Power Zoom buttons, you can turn the Zoom Ring manually with your fingers. This lets you control the speed of the zoom.



Zoom Ring

Quick Review



REVIEW
Button

During a recording session (when the camcorder is in the Record/Pause mode), you can review the last few seconds of a taped scene by pressing the *REVIEW* button and watching the viewfinder.



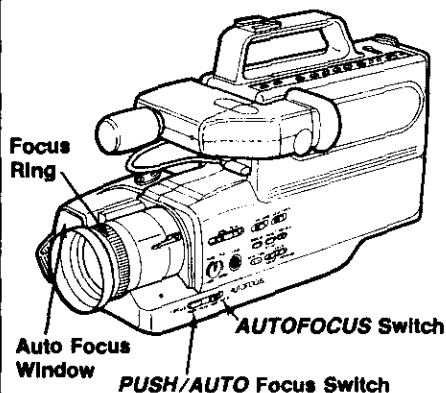
Quick Review helps you recall the last scene you recorded on a tape and lets you set up the next scene. After quick review playback, the camcorder returns to the Record/Pause mode.

Most importantly, Quick Review returns the tape to its previous point after reviewing a scene. As a result, you can use this feature and then start recording again without creating a "gap" or picture break-up between taped segments.

Recording Features (cont.)

Focusing Your Camcorder

Auto Focus



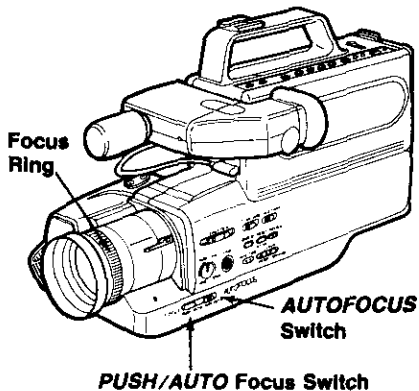
If you want the camcorder to focus for you automatically, slide the *AUTOFOCUS* switch to the *AUTO* position.

The camcorder's auto-focus system sends out an infrared light beam and automatically focuses on the nearest object that reflects this light. Take care not to block the camcorder's Auto Focus Window while recording with the auto-focus feature.

If any of the following conditions exist, you may need to switch off the auto-focus system and focus manually by turning the focus ring. To switch off auto-focus, slide the *AUTOFOCUS* switch to the *MAN* (manual) position.

- Sloping or inclined surfaces may not be focused because the reflected light will not be returned to the auto-focus window.
- When shooting through a window, the auto-focus system may focus on the window glass instead of your subject.
- Dark objects, such as a subject's clothing, may absorb the infrared light. Manual focus may be required.
- Auto focus may not be able to work reliably on subjects more than approximately 35 feet away from the camcorder.
- When using the optional wide-angle or telephoto lens adapters, turn off the auto-focus system and focus manually. It is not possible to use autofocus when these adapters are being used.

Manual Focus



If you do not want the camcorder to focus for you automatically, slide the *AUTOFOCUS* switch to the *MAN* (manual) position. You can then adjust the focus as desired by turning the Focus Ring with your fingers.

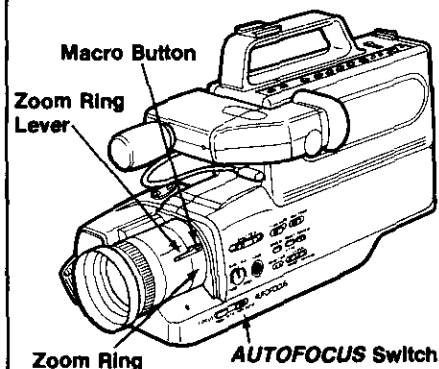


Helpful Hint Before you start recording, zoom in on your subject and adjust the Focus Ring so that a sharp, clear picture is displayed in the viewfinder. (You can zoom in on your subject by holding the Power Zoom button labeled "T".) By using this procedure for manual focus, the camcorder will maintain proper focus throughout the zoom range.

You can also quickly and momentarily switch from *MANUAL* to *AUTO* focus by pushing the *PUSH/AUTO* focus switch in while the *AUTOFOCUS* switch is in the *MANUAL* position. When the switch is pressed in and held, automatic focus is activated and remains activated until the switch is released. This is useful if you are shooting a relatively static scene in *MANUAL* focus and need to quickly and momentarily use *AUTO* focus to adjust for a change in scene.

Macro Focus

The macro focus feature lets you focus on objects as close as 1/4 inch from your subject.



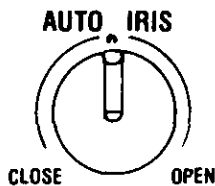
1. Slide the *AUTOFOCUS* switch to the *MAN* (manual) position.
2. Press in and hold the Macro Button (on Zoom Ring Lever) while rotating the Zoom Ring to the *MACRO* position. (You'll see the word *MACRO* on the zoom ring scale. Make it align with the white line.)
3. Release the Macro Button after the Zoom Ring is in the *MACRO* position.
4. Slowly rotate the Zoom Ring with your fingers until you get a sharp picture.

Notes:

- Zooming is not possible when in Macro Focus. To change the size of the subject, move the lens closer or further away from it.
- The Focus Ring has no effect in Macro Focus.

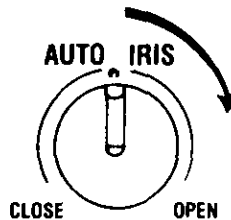
Recording Features (cont.)

Adjusting *AUTO IRIS* For Unusual Lighting

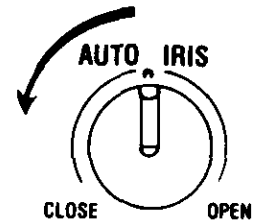


With the *IRIS* control in the *AUTO* (center "click") position, your camcorder electronically senses the available light in a scene and automatically opens or closes the lens iris for the best possible picture.

You also have the option of manual iris adjustment to compensate for unusual lighting, using the *IRIS* control to vary the amount of light entering the camcorder.



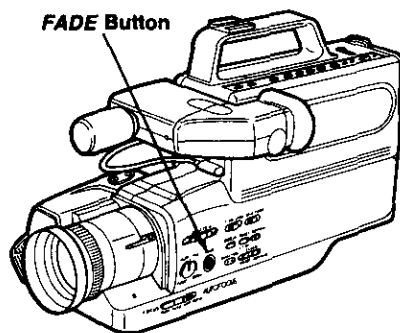
- Moving the *AUTO IRIS* control toward the *OPEN* position (right) allows more light to enter the camcorder. Try this position, when the background is bright but your subject appears too dark. (For example, when you are taping someone indoors who is standing in front of a window.)



- Slowly moving the *AUTO IRIS* control toward the *CLOSE* position (left) allows less light to enter the camcorder. Try moving the knob in this direction when your subject appears too bright.

Fading In and Out of Scenes

This feature lets you add a professional touch to your home recordings. When you fade into a scene, the recording will start with a blank screen and the picture will gradually appear. The picture gradually disappears when fading out.



- When using the *FADE* button, both picture and sound will gradually appear and disappear. The fade speed is automatically controlled by the camcorder.



Fading In

1. While the camcorder is in the Record/Pause mode, press and hold the *FADE* button.
2. Press the Record Start/Stop button (thumb trigger) to start recording.
3. Release the *FADE* button after a few seconds. The picture will gradually appear on a blank screen.

Fading Out

1. While the camcorder is recording, press and hold the *FADE* button. The picture will gradually disappear from the screen.
2. Continue to hold the *FADE* button, and press the Record Start/Stop button (thumb trigger) to stop recording.
3. After the recording has stopped, release the *FADE* button. The picture will reappear in the viewfinder.

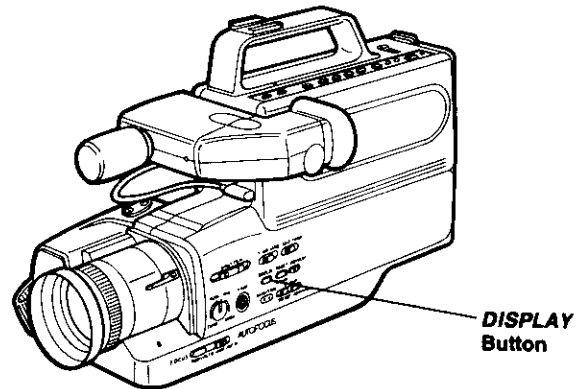
Recording Features (cont.)

DISPLAY Button



Pressing the *DISPLAY* button lets you check several special displays in the viewfinder.

- Remaining Battery Power
- Tape Counter
- Tape Counter Memory
- Remaining Time Left on Tape



The chart below shows the order the displays will appear in the viewfinder as you repeatedly press the *DISPLAY* button. These displays will not appear on the tape.

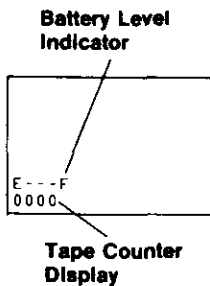
DISPLAY Button Chart

Press <i>DISPLAY</i> Button	Name of Display	What You'll See in the Viewfinder (WBI not be recorded on tape)
One Time	Battery Level and Tape Counter	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;"> E --- F 0 0 0 0 </div>
Two Times	Battery Level and Tape Counter with Memory	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;"> E --- F 0 0 0 0 M </div>
Three Times	Battery Level and Time-Remaining Display	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;"> E --- F : : : : </div>
Four Times	Removes Displays	<div style="border: 1px solid black; width: 100px; height: 100px; margin: auto;"></div>
Five Times	Returns to first display	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;"> E --- F 0 0 0 0 </div>

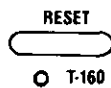
Recording Features (cont.)

Using Tape Counter

Pressing the *DISPLAY* button once displays the 4-digit Tape Counter Display in the viewfinder (below the Battery Level Indicator).



The tape counter acts as a handy reference to help you locate tape segments.

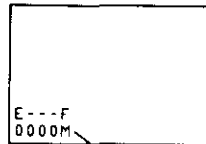


To use the Tape Counter, press the *RESET/T-160* button to set the counter to 0000 before starting to record or play at the beginning of a tape. Then note the number on the counter at the beginning and end of each program you record or play.

Noting the counter readings on the tape label will allow you to use the counter to quickly locate desired programs. Just insert a tape, rewind it to the beginning, reset counter to zero, and then fast-forward the tape until the counter reaches the number you noted for the desired segment.

Using Tape Counter Memory

The Tape Counter also provides a switchable "memory" feature. When the memory is on (*M* appears behind Tape Counter Display), the tape automatically stops when the counter reaches 0000 during Rewind and Fast Forward.



Tape Counter Display With Memory On

This is useful if there is a section of tape you want to review immediately after recording, or if you want to return to the same point several times in a row.

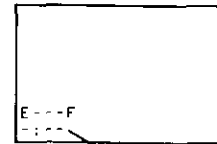
To use the counter memory:

1. Repeatedly press the *DISPLAY* button until the tape counter appears with an "M" behind it.
2. When you reach the part of the tape you wish to index, press the *RESET/T-160* button to reset the counter to 0000M.
3. Continue to play or record the tape. When you want to return to the index point, simply press *STOP*, then *REWIND*. (The *CAMERA/PLAYBACK* switch must be in *PLAYBACK* position to rewind the tape).
4. The tape will stop rewinding when the counter reaches 0000.

Note: Whenever the "M" appears behind the Tape Counter Display, the camcorder will stop rewinding or fast-forwarding when the counter reaches 0000M. To continue rewinding press *REWIND* again, to continue fast-forwarding press *F.FWD* again.

Using Time-Remaining Display

The time-remaining display shows the amount of recording or playback time left on a tape while it's inside the camcorder.



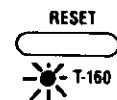
Time-Remaining Display

To bring this display to the viewfinder, repeatedly press the *DISPLAY* button until the Time-Remaining Display appears. (See the *DISPLAY* button chart on page 26 to see how many times you will have to press the *DISPLAY* button.)

When you first start playing or recording a tape, it will take the camcorder a minute or two to calculate the time-remaining. The display will remain blank until the camcorder has finished its calculations. Once displayed, the time-remaining display will be automatically updated and readily available when the *DISPLAY* button is pressed—even if you rewind or fast forward the tape.

Notes:

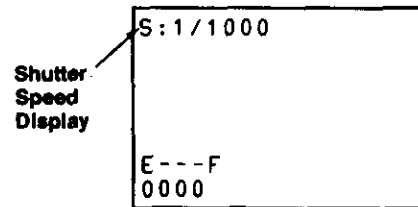
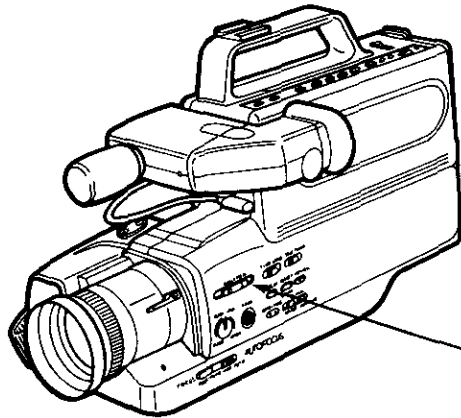
- When using an extended length T-160 cassette, you must press the *RESET/T-160* button (while the Time-Remaining Display is present) to adapt the camcorder's time-remaining system for an accurate read-out.
- The T-160 indicator will light when the display is set for a T-160 tape.



- If the Tape Counter Display is present, pressing the *RESET/T-160* button resets the counter to 0000.

Recording Features (cont.)

Using Variable Shutter Speeds



Because your camcorder has a variable shutter, you can choose one of two higher shutter speeds to record fast-moving action.

The shutter speed is automatically reset to the normal shutter speed of 1/60 whenever the camcorder's power is turned on. This speed is recommended for indoor videos and most of your recording.

To select a higher shutter speed, slide the *SHUTTER* speed switch located on the side of the camcorder to the right.



- Slide the switch to the right once to select a shutter speed of 1/500.
- Slide the switch to the right a second time to select a shutter speed of 1/1000.
- Slide the switch to the right a third time to return to the normal shutter speed of 1/60.

The higher shutter speeds will appear in the viewfinder above the Tape-Counter and Time-Remaining Displays when you press the *DISPLAY* button. No display appears when the normal shutter speed of 1/60 is being used.

Higher shutter speeds require more light. The shutter speed display in the viewfinder will flash if more light is required.

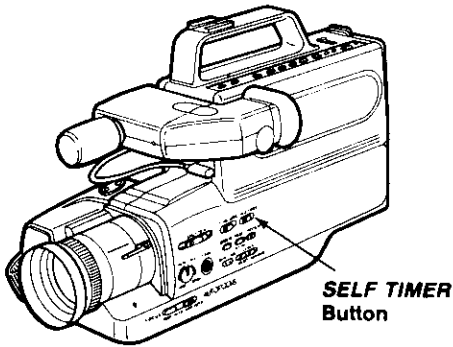
Notes:

- The higher shutter speeds are only recommended when you are taping fast-moving action that you plan to view in slow motion or stop action on a good-quality VCR that features "field-still" special effects (2 or 3-head VCR's).
- There is no advantage in using the higher shutter speeds unless you plan to play the tape back in slow motion or stop action.

- Higher shutter speeds require more light. The Shutter-Speed Display will flash when you need more light. You should add more light or decrease the shutter speed.
- A tape recorded at the higher shutter speeds may not show movement and change of scenes as smoothly as recordings at the normal 1/60 speed.
- When recording at higher shutter speeds, use of fluorescent, mercury vapor, or sodium lighting may cause a "flickering" effect.

Recording Features (cont.)

Self-Timer Recording



The *SELF TIMER* button lets you time-delay the start of a recording so you can join the picture without being seen walking into it.

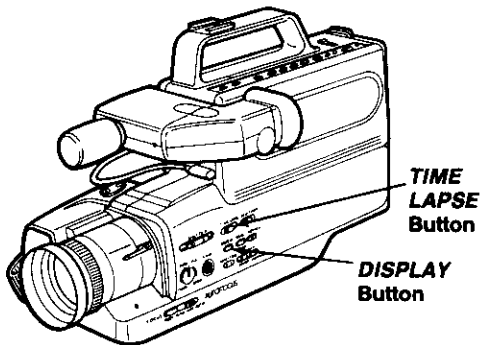


- First prepare the camcorder to record. Instructions are on pages 18 and 19.
- While the camcorder is in the Record/Pause mode, press the *SELF TIMER* button once. The camcorder will automatically start recording after approximately ten seconds and will continue to record approximately 30 seconds.
- If you want the camcorder to record longer than 30 seconds, press the *SELF TIMER* button twice (instead of once) while the camcorder is in the Record/Pause mode. After ten seconds the camcorder will start recording and continue to record until the Record Start/Stop button (thumb trigger) or *PAUSE* button is pressed.

Notes:

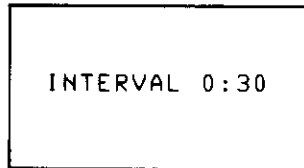
- The Tally Light on the front of the camcorder will flash to let you know the self-timer is activated and the camcorder is about to start recording.
- When the Tally light stops flashing and lights continuously, the camcorder is recording.
- Pressing the *SELF TIMER* button three times during the Record/Pause mode cancels the self-timer recording.
- If the Record Start/Stop button (thumb trigger) is pressed while a self-timer recording is in progress, the recording will stop and the camcorder will enter the Record/Pause mode.
- The *SELF TIMER* button has no effect during normal recording.

Adjustable Time-Lapse Recording



This feature lets you compress slow-moving action (like nature or photography studies) into clean, quickly viewed videos. It allows intermittent recording so you can use a cassette efficiently.

1. Prepare the camcorder to record as described on pages 18 and 19.
2. Press the *DISPLAY* button to bring the tape-counter (or time-remaining) display to the viewfinder. This will let you see the *INTERVAL* display when it appears.
3. Press the *TIME LAPSE* button for approximately two seconds. The first *INTERVAL* display will appear in the viewfinder.



4. Press the *TIME LAPSE* button repeatedly until the length of time you desire between recordings appears in the viewfinder. Refer to the chart below.

Viewfinder Display	Recording Interval
0:30	30-Second Interval
1:00	1-Minute Interval
2:00	2-Minute Interval
5:00	5-Minute Interval
MAN	Manual Interval*

*Manual Interval means that the camcorder will record for one second every time the Record Start/Stop button (thumb trigger) is pressed. This is used for animation recording as described on the next page.

Pressing *TIME LAPSE* again when the *MAN* display is showing will remove the *INTERVAL* display from the screen.

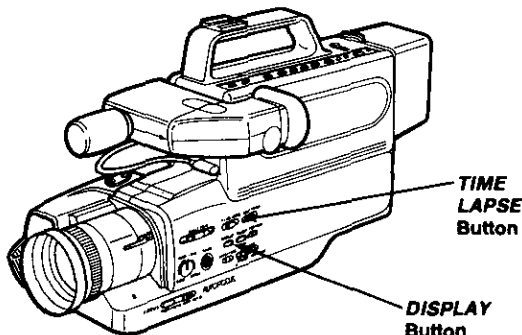
5. When the desired interval time is displayed in the viewfinder, press the *PAUSE* button or the Record Start/Stop button (thumb trigger) to start interval recording. The camcorder will record for approximately one second every interval. The time until the next recording will be displayed in the viewfinder.
6. To stop interval recording, repeatedly press the *TIME LAPSE* button until the word *INTERVAL* disappears from the viewfinder.

Notes:

- The Tally Light on the front of the camcorder will light to let you know when the camcorder is recording.
- The interval time can be changed any time (even during recording) by pressing the *TIME LAPSE* button.
- The time and/or date can be recorded by displaying it in the viewfinder during time-lapse recording.
- Rainbow noise (a vertical colored bar) may occasionally appear in the picture during playback.

Recording Features (cont.)

Animation Recording



The adjustable time-lapse feature also lets you create animation recording—"cartooning". For example, you can make an object appear to move by taking several still shots of it in different positions. When the tape is played back, the object appears animated.

1. Prepare the camcorder to record as described on pages 18 and 19.
2. Press the *DISPLAY* button to bring the tape-counter (or time-remaining) display to the viewfinder. This will let you see the *INTERVAL* display when it appears.
3. Press the *TIME LAPSE* button for approximately two seconds. The first *INTERVAL* display will appear in the viewfinder.

4. Repeatedly press the *TIME LAPSE* button until the word *MAN* (manual interval) appears in the viewfinder.



When this display appears, the camcorder will record for approximately one second each time you press the *PAUSE* button or the Record Start/Stop button (thumb trigger).

5. Position your object as desired for the first shot, and then press the thumb trigger (or *PAUSE* button). The camcorder will record briefly and then pause. Don't move the object yet.

6. Continue shooting the object in this position for a few more 1-second shots before moving it.

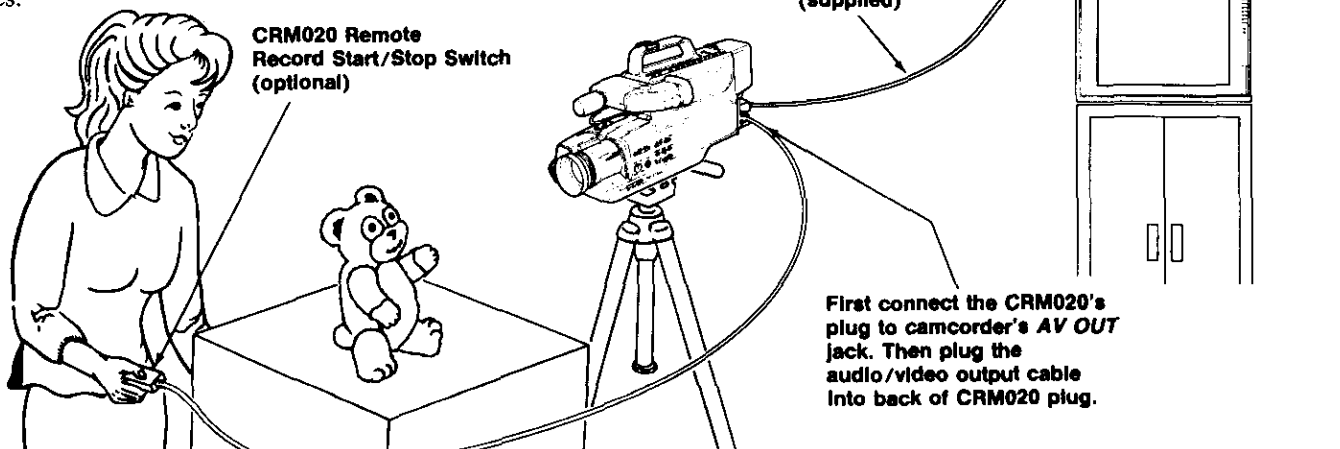
Note: When preparing an animated video, it's usually best to get 3 to 5 shots of the object in the same position. You'll want to experiment with how many shots you take each time to get smooth motion.

7. Slightly move the object and shoot a few 1-second shots of it in this position. Continue shooting and moving the object(s) as desired.
8. To stop animation recording, press the *TIME LAPSE* button to remove the *INTERVAL* display from the viewfinder.

Notes:

- The camcorder will automatically move the tape away from the heads if you do not record within five minutes. This prevents the tape heads from wearing the tape. When you begin to record after a long pause, the word *STANDBY* will appear briefly in the viewfinder while the camcorder repositions the tape against the headwheel.
- Rainbow noise (a vertical colored bar) may occasionally appear in the picture during playback.

Note: The optional CRM020 lets you remotely start and stop recording up to 15 feet away from the camcorder. The plug on the CRM020 is specially designed so you can attach both the CRM020 and the audio/video output cable to the camcorder at the same time. You will find this application especially convenient during animation recording or anytime you want to control the camcorder from a distance. See pages 44 and 45 for optional accessories.



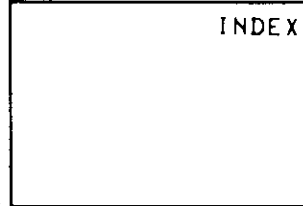
Recording Features (cont.)

Electronic Indexing

Each time you begin recording (after the camcorder has been turned off at least four hours), the camcorder will automatically record an index mark at the beginning of the new recording.

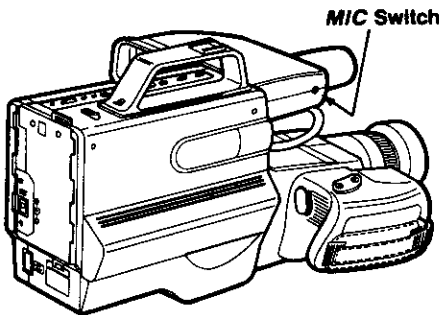
Later, when you play back the indexed tape in a VCR that has a compatible indexing feature called "VHS Index Search System", the invisible marks can be located automatically. See your VCR's owner's manual for index playback instructions.

The word *INDEX* will appear briefly in the viewfinder to let you know the camcorder is recording an index mark.



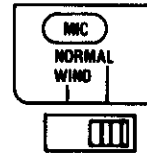
- The camcorder automatically records an index mark only once—at the start of each day's recording session (or whenever it hasn't been used for more than four hours).
- It does not automatically record index marks each time you stop and start recording—only the first time you turn on the camcorder and start recording.

NORMAL/WIND MIC Switch



The camcorder records whatever sound the microphone hears. During outdoor shooting on a windy day, the camcorder may record noise that occurs due to wind.

You can reduce the wind noise that's recorded on the tape by sliding the *NORMAL/WIND MIC* switch to the *WIND* position.



Place the switch in the *NORMAL* position for normal use.

Recording Features (cont.)

Editing Features

The CC285 incorporates a package of advanced editing features to make it easy and fun to edit your home videos like a professional. The major editing features are described here and on the next three pages.

- Flying Erase Head
- Edit Search
- Synchro Edit
- Audio Dubbing
- Video Dubbing

Flying Erase Head

A separate erase head is mounted on the spinning headwheel (hence the term "flying"). This allows you to make clean edits without "glitches" or the "rainbow noise" that occurs on VCR's and camcorders without flying erase heads.

CAUTION: The unauthorized recording of television programs and other materials may infringe the rights of others.

Edit Search

Edit Search means that you can use the *F.FWD* (fast-forward), *REW* (rewind), and *PLAY* buttons to precisely position the tape even while the *CAMERA/PLAYBACK* switch is in the *CAMERA* position.

Since you can do this while the camcorder is in the camera mode, without the tape unloading, it is possible to precisely position the tape for the next scene—eliminating the "between-scene glitches" that are common on camcorders without this feature.

To permit smooth editing while recording, the *F.FWD*, *REW*, and *PLAY* buttons can be pressed while the *CAMERA/PLAYBACK* switch is in *CAMERA* mode.



- Holding *REW* lets you quickly reverse scan recorded material.
- Holding *F.FWD* lets you quickly forward scan recorded material.
- Holding *PLAY* lets you view recorded material at normal speed. When you release the *PLAY* button, the camcorder will stop playing and prepare to record at that spot.

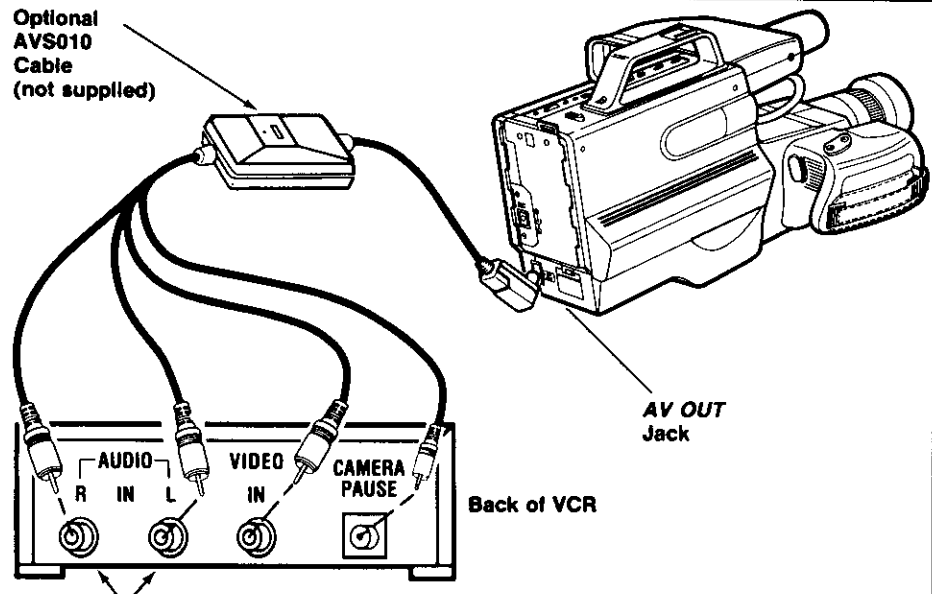
Recording Features (cont.)

Synchro Edit

CAUTION: The unauthorized recording of copyrighted material may infringe the rights of others. Such recordings should not be made.

Synchro edit allows your camcorder to control a compatible VCR (one that has a camera pause jack) while tapes are being copied from the camcorder to the VCR.

The *PAUSE* button on the camcorder causes the VCR to start and stop recording. This is especially convenient when you want to record only selected segments from a previously recorded tape.



Note: If your VCR has a single (mono) audio input, connect either the left or right audio plug to the audio input on the VCR.

To Synchro Edit

1. Connect your camcorder to a compatible VCR as shown above. An optional AVS010 Synchro Edit Cable is required. Optional accessories are shown on pages 44 and 45.
2. Prepare the camcorder to play back the tape you want to copy.
 - Slide *POWER* to turn on the camcorder.
 - Slide *CAMERA/PLAYBACK* switch to *PLAYBACK* position.
 - Press *EJECT* and insert the tape.
 - Press *PLAY*, then *PAUSE* to put the camcorder in the Play/Pause mode. (The AVS010 cable must be connected to VCR before camcorder will pause.)
3. Prepare the VCR to record.
 - Press *POWER* to turn on VCR.
 - Press *EJECT* and insert blank tape in VCR.
 - Press *RECORD* to put the VCR in the Record/Pause mode.

Note: If the VCR begins to record instead of pausing, you will need to change the position of the switch on the AVS010 cable. Stop the VCR, change the switch, and then press *RECORD* on the VCR again.
4. Pressing the *PAUSE* button on the camcorder will now start the camcorder playing and also start the VCR recording.
5. Pressing *REW*, *F.FWD*, *STOP*, or *PAUSE* on the camcorder automatically puts the VCR into Record/Pause mode. This allows you to search (forward or backward), fast-forward, or rewind the tape in the camcorder without disturbing the tape in the VCR.
 - To search forward (or backward), press and hold *F.FWD* (or *REW*). When you release the button, the camcorder will resume normal playback. To begin dubbing again, press *PAUSE* twice. (The first press pauses the camcorder, the second press begins dubbing.)
 - To fast-forward (or rewind) the tape, press *STOP* then *F.FWD* (or *REW*). To begin dubbing again, press *STOP*, then *PLAY*, then *PAUSE* to pause camcorder, and *PAUSE* again to begin dubbing.

Recording Features (cont.)

Audio Dubbing

The audio dubbing feature lets you record new audio (sound) on a previously recorded tape without erasing the original video (picture).

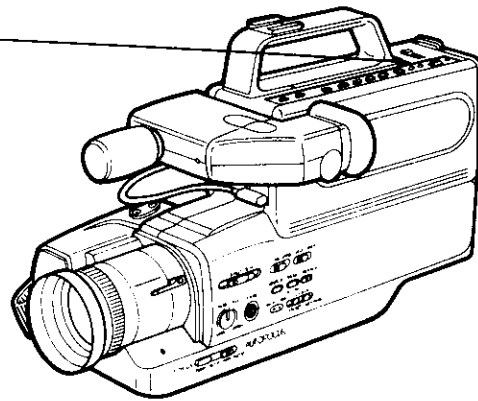
When you audio dub a tape, the previous audio is erased and replaced with the new audio.

The audio dubbing feature also increases your editing flexibility. Video segments can first be assembled, and then a single narration or music background can be added to the tape.

The new audio you want to put on the tape can be added one of three different ways:

- from speaking into the camcorder's built-in microphone.
- from speaking into an external microphone connected to the *MIC* jack. (The built-in microphone is inoperable when an external microphone is attached.)
- from an external sound system connected to the *AV IN* jack on the camcorder by using the Audio/Video Input Cable as shown below. (Be sure to disconnect external microphone, if connected, when recording.)
- See pages 44 and 45 for optional accessories.

AUDIO VIDEO
DUB



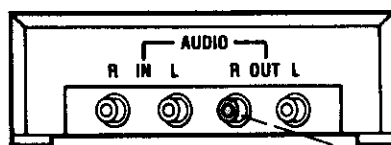
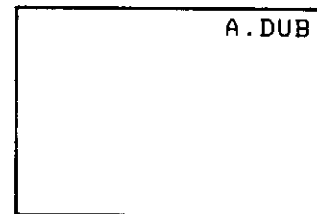
To Audio Dub

1. Slide the *POWER* button to turn on the camcorder.
2. Slide the *CAMERA/PLAYBACK* switch to the *PLAYBACK* position.
3. Insert the tape and press *PLAY* and then *REWIND* to locate a point on the tape a few seconds before you want to begin dubbing.
4. Press the *PAUSE* button exactly where dubbing is to begin. The camcorder will enter the Play/Pause mode.
5. Press and hold *AUDIO DUB* button. Then press *PLAY*. Release both buttons.
6. To begin dubbing, press the *PAUSE* button. The word *A.DUB* will appear in the

viewfinder to let you know when the camcorder is audio dubbing.

7. To end dubbing, press the *STOP* button.

Note: You can also dub both the video and audio simultaneously if desired. To do so, press *AUDIO DUB* and *PLAY* first, then press *VIDEO DUB* and *PLAY* in step 5 above.

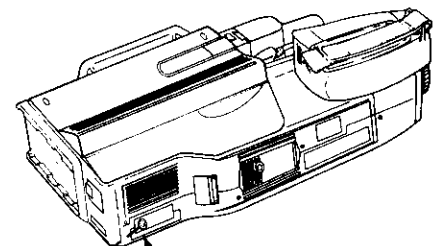


Back of VCR, Tape Deck, or CD Player

White Audio Plug

Audio/Video Input Cable (supplied)

Yellow Video Plug (No Connection)



Bottom of Camcorder

AV IN Jack

Note: If the VCR, Tape Deck, or CD Player has stereo audio outputs (both *R* and *L* jacks) you may need a Y-Adapter as shown here to record both left and right channels.



Y-Adapter available at electronic supply stores.

Recording Features (cont.)

Video Dubbing

The video dubbing feature lets you record new video (picture) on a previously recorded tape without erasing the original audio (sound).

When you video dub a tape, the previous video is erased and replaced with the new video.

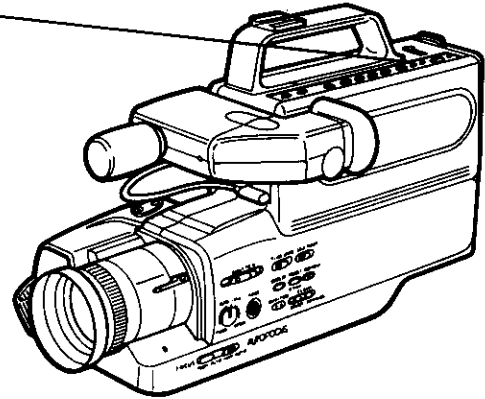
When video dubbing, the source for the video dub is "whatever you are seeing in the viewfinder".

The new video you want to put on the tape can be added one of two different ways:

- from whatever you focus the camcorder on and see in the viewfinder.
- from video coming in through the camcorder's *AV IN* jack (using the audio/video input cable shown below).
- See pages 44 and 45 for optional accessories.

Note: You can also dub both the video and audio simultaneously if desired. To do so, press *AUDIO DUB* and *PLAY*, then *VIDEO DUB* and *PLAY* in step 6 at the right. Be sure to connect both the Audio & Video Plugs to the VCR, Tape Deck, or CD Player.

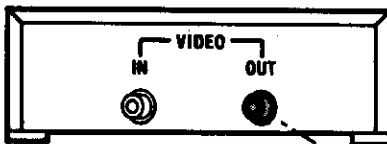
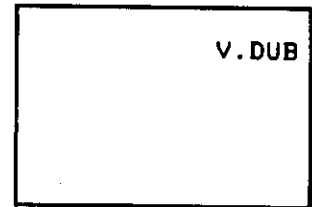
AUDIO VIDEO
DUB



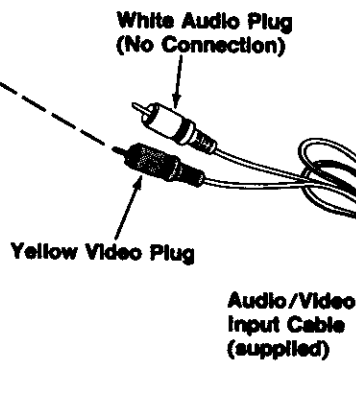
To Video Dub

1. You can use the camera section on your camcorder for creating the new video to dub. To do so, remove the connector cable from the *AV IN* jack on the bottom of the camcorder, if connected.
 - Or, if desired, connect the source VCR or other video generating device to the *AV IN* jack of the camcorder.
2. Slide the *POWER* switch to turn on the camcorder.
3. Slide the *CAMERA/PLAYBACK* switch to the *PLAYBACK* position.
4. Insert the tape and press *PLAY* and then *REWIND* to locate a point on the tape a few seconds before you want to begin dubbing.
5. Press the *PAUSE* button exactly where dubbing is to begin. The camcorder will enter the Play/Pause mode.
6. Press and hold *VIDEO DUB* button. Then press *PLAY*. Release both buttons.
7. To begin dubbing, press the *PAUSE* button. The word *V.DUB* will appear in the viewfinder to let you know when the camcorder is video dubbing.
8. To end dubbing, press the *STOP* button.

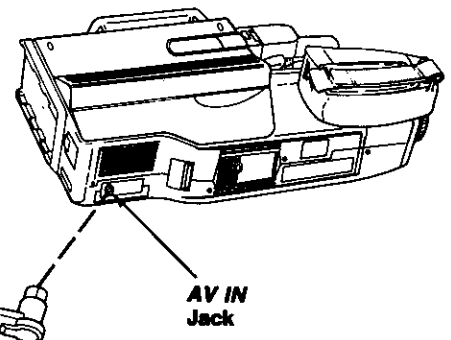
Note: The word *V.DUB* will appear in the viewfinder to let you know when the camcorder is video dubbing.



Back of VCR, Tape Deck, or CD Player



Bottom of Camcorder

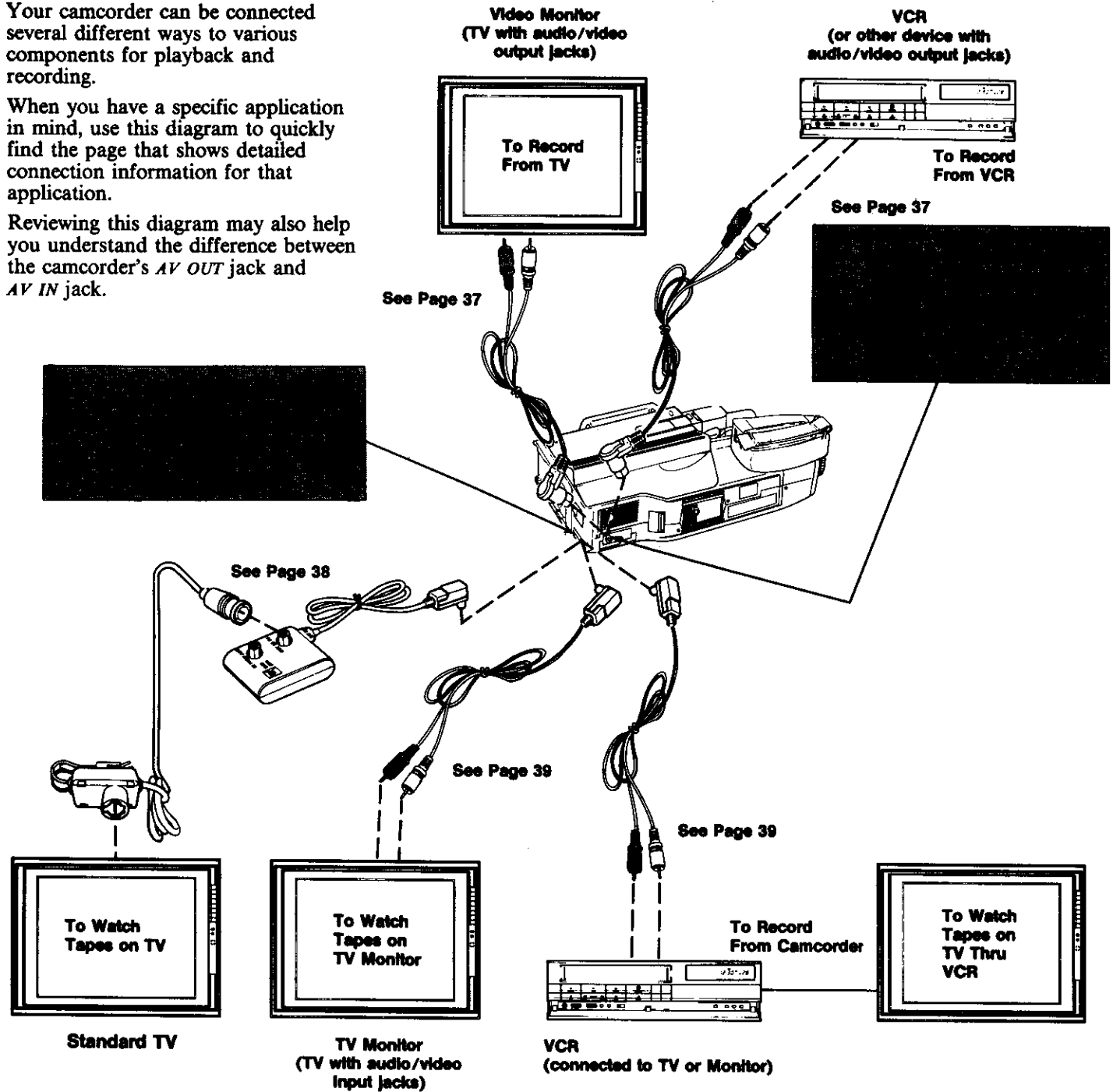


Quick-Reference Connection Diagrams

Your camcorder can be connected several different ways to various components for playback and recording.

When you have a specific application in mind, use this diagram to quickly find the page that shows detailed connection information for that application.

Reviewing this diagram may also help you understand the difference between the camcorder's *AV OUT* jack and *AV IN* jack.



The tapes you record on your camcorder can be played back and viewed in many different ways:

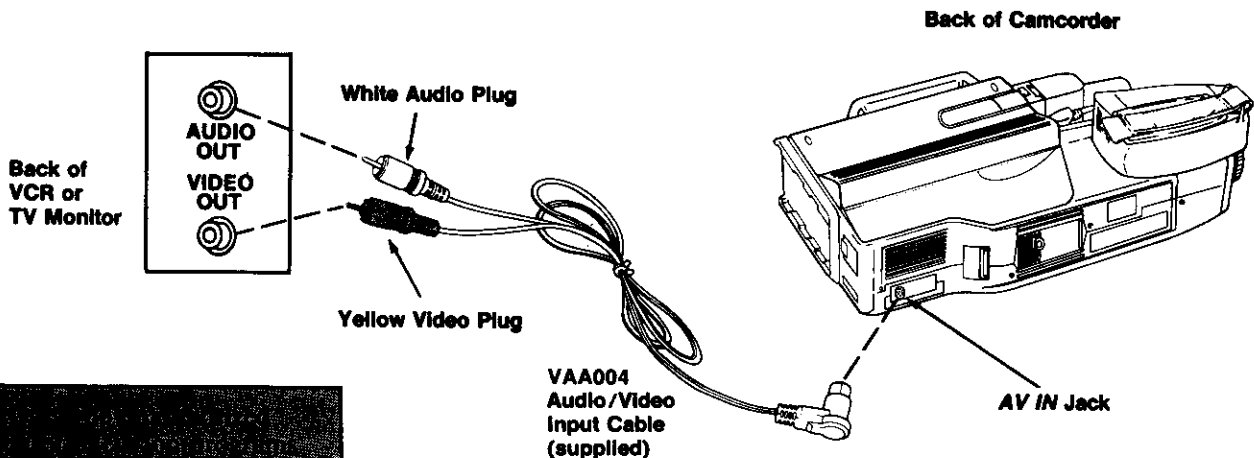
- By playing the camcorder and watching the viewfinder.
- By taking tape out of camcorder and playing it back on another home VCR.

- By connecting camcorder to TV with RF Output Adapter and watching TV screen.
- By connecting camcorder to monitor with Audio/Video Output Cable and watching monitor screen.
- By connecting camcorder to another VCR that is already connected to a TV and watching the TV screen.

The following pages show you how to connect your camcorder to a TV, monitor, or VCR and explain how to play back the tapes.

Note: Although you can use the battery to power the camcorder during tape playback, you will probably want to use the AC adapter/charger if you intend to watch for an extended period.

Recording From VCR or Monitor



If your VCR (or TV monitor) has *AUDIO OUT* and *VIDEO OUT* jacks, you can record from the VCR (or TV monitor) onto a tape in the camcorder.

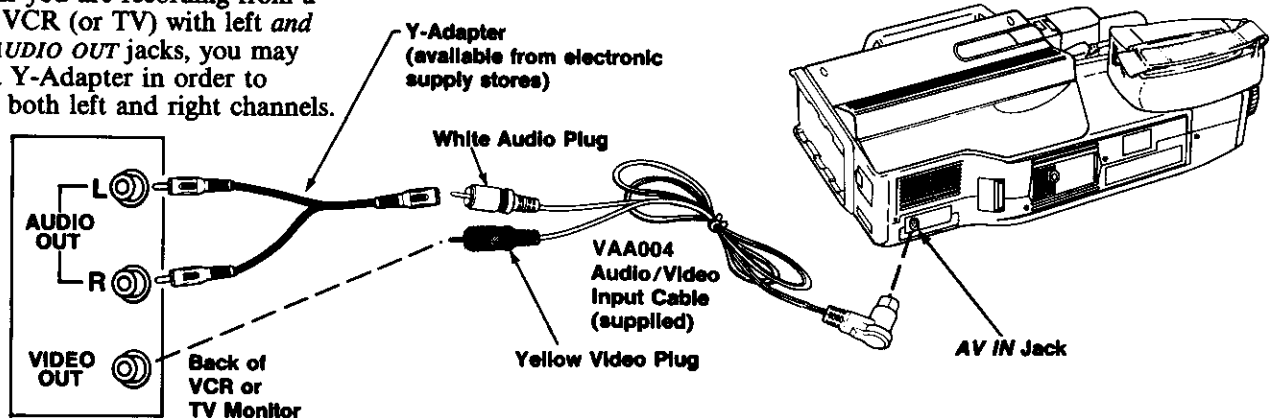
You will need the audio/video input adapter cable to connect your camcorder to the VCR (or TV monitor).

1. **Connect yellow and white plugs to VCR (or TV).**
 - Connect yellow plug to TV's *VIDEO OUT* jack.
 - Connect white plug to TV's *AUDIO OUT* jack.
2. **Attach input cable to camcorder.**
 - Attach other end of cable to the *AV IN* jack on the camcorder.

3. **Attach a power supply to your camcorder.**
 - If you plan to record for over an hour or two, you will probably want to use the AC adapter/charger instead of the battery.
4. **Turn on your camcorder.**
 - Slide the *POWER* switch to the on position.
5. **Insert Cassette Tape.**
 - Press the *EJECT* button on the camcorder and insert a cassette tape with its record-protect tab intact.
 - Details about the record-protect tab are on page 17.
6. **Prepare camcorder to record.**
 - Slide the *CAMERA/PLAYBACK* switch to the *CAMERA* position.

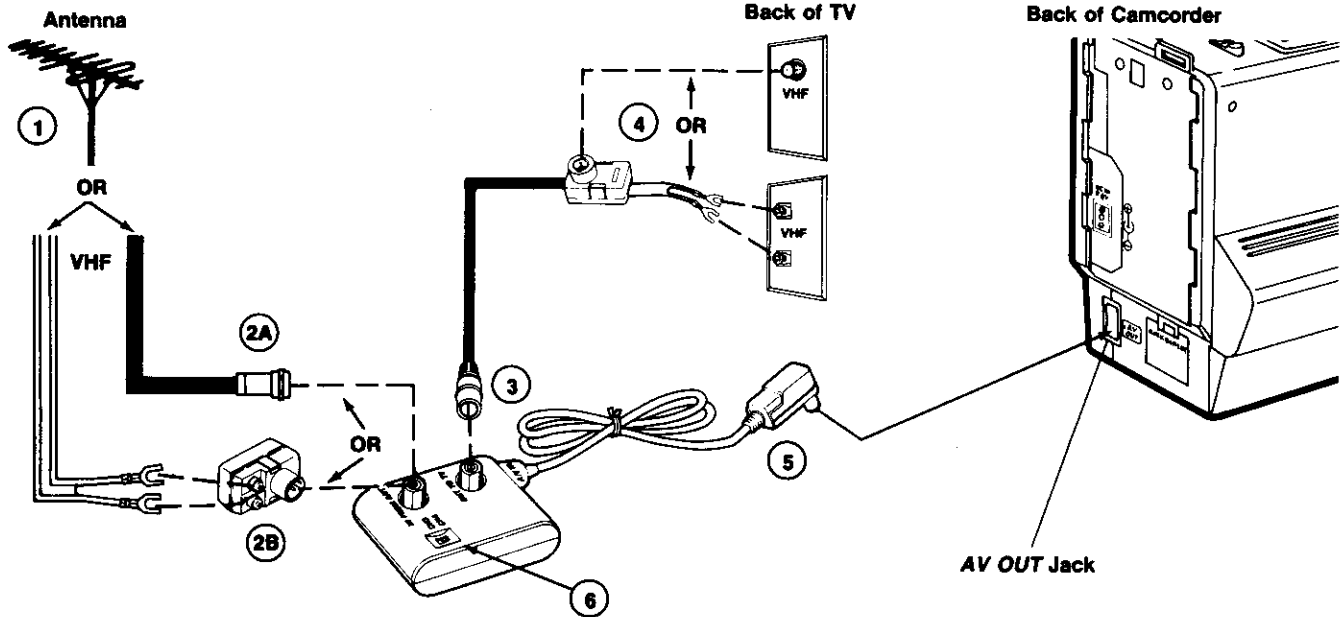
7. **Prepare VCR (or TV).**
 - Turn on your VCR (or TV) and tune it to the channel you wish to record.
 - If you are recording from a tape in the VCR, press the *PLAY* button on the VCR to start the tape playing.
8. **Start recording.**
 - Press the Record Start/Stop button (thumb trigger) on the camcorder to start recording.
9. **Stop recording.**
 - When you are finished recording, press the thumb trigger again (or press the *PAUSE* button) to stop recording.

Note: If you are recording from a stereo VCR (or TV) with left and right *AUDIO OUT* jacks, you may need a Y-Adapter in order to record both left and right channels.



Playback Connections

How to Connect Your Camcorder to a Standard TV (without *AUDIO/VIDEO* input jacks) for Playback



Follow the steps below if you have a standard TV that does not have *AUDIO/VIDEO* input jacks. Refer to page 39 if you have a monitor/receiver with input jacks.

You will need the *RF output adapter* and *coaxial RF cable* that came packed with your camcorder. If your antenna cable is the flat twin-lead type that is attached by two screws, you will also need the *300/75-ohm transformer*.

- ① Disconnect the VHF antenna from your TV set. (You can leave the UHF wires alone.)
- ② Connect your VHF antenna to the RF input adapter. (This step is not necessary unless you plan to leave the RF adapter hooked up to your TV set.)
 - A. If your antenna cable is a round 75-ohm cable, connect it to the *ANT* connector on the RF adapter.
 - B. If your antenna cable is a flat twin-lead, you will need the 300/75-ohm transformer that was packed in your camcorder. Connect the flat-lead connectors to the screw terminals on the 300/75-ohm transformer. Then connect the transformer to the *ANT* connector on the RF adapter.
- ③ Attach one end of the coaxial RF cable to the TV connector on the RF adapter.
- ④ Connect the other end of the coaxial RF cable to the *VHF* terminal on the back of your TV. (If your TV has VHF screw terminals, connect the adapter's flat-lead connectors to the screw terminals.)
- ⑤ Plug the multi-pin connector fitting on the RF adapter into the *AV OUT* jack on the camcorder. To aid connection, match the tabs on the fitting with the notches on the camcorder jack. Don't force the fitting. If it does not slide in easily, check your marks and try again. (If the camcorder is used as a camera while connected to the TV, be sure to turn the set's volume down to prevent a high-pitched squeal caused by feedback.)
- ⑥ Set the switch on the RF adapter to channel 3 or 4, whichever is not used as a broadcast channel in your area. Turn on the TV and tune it to the channel you have chosen.

- ⑦ During playback, you may fine tune the TV channel if necessary. (For details of playback operation, refer to page 40.)
- ⑧ For normal TV viewing, you may leave the RF adapter hooked up to the TV set. Just disconnect the adapter from the camcorder or turn off the camcorder's power.

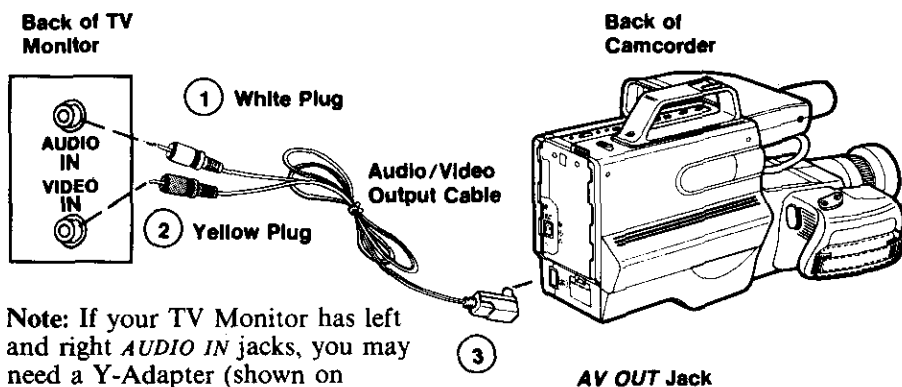
Playback Connections (cont.)

How to Connect Your Camcorder to a Video Monitor for Playback

Here's what you can do when your camcorder is connected as shown here.

- When you play tapes in your camcorder, you'll be able to watch them on the monitor screen as well as through the viewfinder.
- You'll also be able to monitor what the camcorder lens sees whenever the camcorder is turned on—even when the camcorder is not recording. This connection could be used for a surveillance system.

If you have a TV monitor that has *AUDIO/VIDEO IN* jacks, you can connect your camcorder using the *audio/video output cable* as shown here instead of the *RF output adapter* (as shown on page 38).



Note: If your TV Monitor has left and right *AUDIO IN* jacks, you may need a Y-Adapter (shown on page 37) to hear both channels.

- 1 Connect the white audio plug to the *AUDIO IN* jack on the back of the monitor.
- 2 Connect the yellow video plug to the *VIDEO IN* jack on the back of the monitor.
- 3 Plug the multi-pin connector into the *AV OUT* jack on your camcorder.

CAUTION: Do not force the connector. Match the tabs on the connector to the notches on the camcorder jack. If the connector does not slide in easily, check your marks and try again.

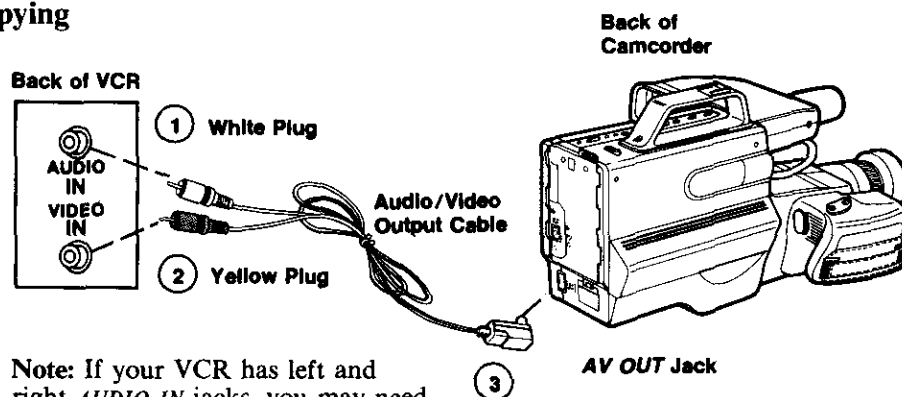
Your camcorder is now connected to the monitor for tape playback. For details of playback operation, refer to page 40.

How to Connect Your Camcorder to a VCR for Playback and Tape Copying

Here's what you can do when your camcorder is connected to a VCR and the VCR is connected to a TV or monitor.

- When you play tapes in your camcorder, you'll be able to watch them on the TV screen through the VCR.
- You'll also be able to monitor what the camcorder lens sees whenever the camcorder is turned on—even when the camcorder is not recording. This connection could be used for a surveillance system.
- You'll also be able to copy a tape with the VCR while it's playing in the camcorder. And you can monitor the recording on the TV.

If you have a VCR that has *AUDIO/VIDEO IN* jacks, you can connect your camcorder using the *audio/video output cable* as shown here instead of the *RF output adapter* (as shown on page 38).



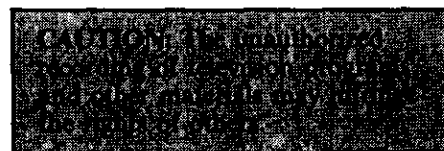
Note: If your VCR has left and right *AUDIO IN* jacks, you may need a Y-Adapter (shown on page 37) to hear both channels.

- 1 Connect the white audio plug to the *AUDIO IN* jack on the back of the VCR.
- 2 Connect the yellow video plug to the *VIDEO IN* jack on the back of the VCR.
- 3 Plug the multi-pin connector into the *AV OUT* jack on your camcorder.
CAUTION: Do not force the connector. Match the tabs on the

connector to the notches on the camcorder jack. If the connector does not slide in easily, check your marks and try again.

Your camcorder is now connected to the VCR for tape playback and tape copying.

For details of playback operation and tape copying, refer to page 41.



Making Better Videos

Camcorder Recording Tips

Use your camcorder's zoom to help you focus manually. Before you start recording, zoom in on your subject, adjust the *Focus Ring* until you see a clearly focused image in the viewfinder, then zoom back to the desired angle of view. Provided the subject-to-camcorder distance does not change, the subject will remain in sharp focus over the entire zoom range. **REMEMBER:** It's easier to make professional-looking videos if you check the focus before you start recording.

Keep your auto focus window clean and unobstructed to help assure proper auto focus operation.

Don't move your camcorder's *Zoom Lever* quickly when controlling the zoom lens manually. A slow, constant speed gives your manual zooms a more professional look on tape.

Try to make sure indoor scenes you record are well-lit. This improves picture quality and color reproduction.

Avoid long "still" shots of landmarks and scenic attractions. Your recordings will be more interesting if they include people and detail. "Local color" will give your travel videos lasting appeal. Consider taping a familiar or landmark scene from an unfamiliar vantage point to give your tape added interest. Remember to check your lighting before recording.

Practice recording under a variety of lighting conditions. This will help prepare you to respond whenever you see a scene you want to tape.

Try to avoid taping backlit subjects indoors. Bright light behind your subject may cause it to appear very dark and low in detail. Adjusting your *IRIS* control can help overcome this problem.

Include close-up shots of individuals when taping a family outing or other group functions. These close-ups make your video memories special.

Be aware of video and audio backgrounds. Background visual details you barely notice while you're taping may show up as visual "clutter" when you review your taped scene. Background noises (especially television sets and radios, household appliances, traffic sounds) can detract from the sounds you want to record. And **REMEMBER:** Don't bump or tap your Camcorder's microphone while you're taping, because this sound will be recorded on your tape!

Don't move the camcorder rapidly from side to side while you're recording. A steady, gradual "pan" avoids blurring and jitter in your taped scene.

Keep your camcorder level while taping. Otherwise, your scenes will appear tilted. Keep a close eye on this in your viewfinder!

Fading in and out between scenes can make your videos appear more professional.

Traveling Tips

CAUTION: If you wish to operate the AC adapter/charger on a power source other than 120 volts, 50/60 Hz, use *only a transformer-type* power converter. **Do not use "solid-state" or "switching-type" power converters. They will damage your AC adapter/charger.** An optional CPS08 adapter/charger may be purchased from your RCA dealer. The CPS08 is designed for use on 100-240 volts, 50/60 Hz. See pages 44-45 for optional accessories.

Jot down your camcorder's serial number and keep this note separate from your equipment when traveling. If your camcorder is lost or stolen, you will be able to identify it.

Use extra care and caution to avoid damage to your camcorder and accessories when operating them at a beach or pool. Spray, sand, and dust should be avoided. Clean your lens gently and thoroughly if it has been exposed to the elements. Remember to use only proper lens cleaning supplies available at camera stores to protect your lens.

Carry your camcorder in a proper case when traveling. (See page 44 for the specially designed soft and hard carrying cases.) An ordinary suitcase or carry bag doesn't offer the protection and custom fit your camcorder needs. For safety, treat your camcorder as carry-on baggage to protect it from rough handling.

Shutter Speed Tips

By increasing the shutter speed, you'll be able to watch better stop-action and slow-motion pictures when you play the tape back on a good-quality home VCR that has these special effects.

The higher the shutter speed, the less blurring you'll see during stop-action, frame advance, and slow-motion. The faster your subject is moving, the higher you'll want to set the shutter speed.

The higher the shutter speed, the more light is required to make a good picture. So as you increase the shutter speed, you may have to increase the amount of light. You will probably want to use the highest shutter speed only in bright outdoor light.

The shutter speed display in the viewfinder will flash if you need to reduce the shutter speed (or increase the amount of light) while recording.

Care and Maintenance

Proper Care of Your Camcorder

- Be especially careful to keep dust from entering the camcorder's cassette door. Dust and grit are abrasive and will cause excessive wear both of tapes and of the recording/playback heads.
- We recommend that RCA video cassettes be used with this unit. These tapes have been manufactured to our critical specifications. Use of tapes not meeting these specifications could considerably reduce the performance of your camcorder.
- Use of poor quality tapes can contaminate the video heads, resulting in a snowy picture or no picture at all during playback.
- Using an RCA headcleaner (model AV009W) may satisfactorily clean the heads and improve the picture. If a snowy picture or no-picture condition persists, consult your authorized RCA Servicenter.
- Always replace the lens cap on the lens when the camcorder is not in use.
- To clean the lens, always use lens-cleaning tissues and a commercially prepared cleaning solution designed for use on camera lenses. The RCA AC026 Lens Care Kit contains both of these items. Improper cleaning can scratch the lens. *Do not touch the lens with your fingers!* The oil from your skin can damage the lens.

Things to Avoid

- Do not attempt to disassemble your camcorder. There are no user-serviceable parts inside.
- *Never attempt to force open the cassette door.* If the battery reaches its empty level during recording, the camcorder will shut off but the battery should have enough reserve power to eject the cassette when you press the *EJECT* button. If the camcorder does not eject the cassette, do not attempt to force open the cassette door. This will damage your camcorder. To remove the cassette, simply power your camcorder with the AC adapter/charger or recharge the battery before attempting to eject the tape.
- Do not use the camcorder in extremely humid environments.
- Do not use the camcorder for extended periods in temperatures below 40°F or above 95°F.
- Do not expose the camcorder or AC adapter/charger to rain or moisture. If either component becomes wet, immediately turn off power and take the unit to an Authorized RCA Camcorder Servicenter.
- **CAUTION:** If you wish to operate the AC adapter/charger on a power source other than 120 volts, 50/60 Hz, use *only a transformer-type* power converter. **Do not use "solid-state" or "switching-type" power converters. They will damage your AC adapter/charger.** An optional CPS08 adapter/charger may be purchased from your RCA dealer. The CPS08 is designed for use on 100-240 volts, 50/60 Hz. See pages 44-45 for optional accessories.
- Avoid operating your camcorder immediately after moving it from a cold location to a warm location. Give the camcorder 1-1/2 to 2 hours to reach a stable temperature before inserting a video cassette. When moved from a cold area to a warm location, moisture may condense on the head drum inside the machine. This moisture could cause the tape to

Storing Your Camcorder

- Store and handle your camcorder so that it is not subjected to swinging, shaking, or dropping. The camcorder can be damaged by improper storage or handling.
- Don't store the camcorder in temperatures below -22°F or above 149°F.
- Always remove the cassette and AC adapter/charger or battery from the camcorder when the camcorder is not in use.
- Retain the original carton for future storage or shipping purposes.

stick to the headwheel and damage the headwheel or tape.

- Only use 9.6 volt batteries and accessories that are especially designed for your camcorder. Use of the wrong accessories could cause damage to the camcorder.
- Do not operate your camcorder in a strong magnetic field. Otherwise, you risk interference to or erasure of recorded information.

Tape Tips

Don't try to use a tape if it has been damaged or exposed to moisture. The tape may jam or damage your camcorder.

Remember to break off the record-protect tab on your cassettes after making an important recording. This will help you safeguard crucial tapes from accidental erasure.

Remember to label your tapes before storing them. Preparing your label before you use your tape helps assure that you will know what it contains.

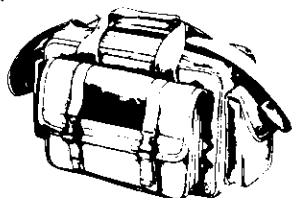
Be careful not to misplace tape boxes. These are essential for proper tape storage. If a tape box

becomes wet, do not use it. It can damage your tape and camcorder.

Don't leave your camcorder and tapes in a car for more than a brief period. Excessive heat or cold can damage them.

Optional Accessories

A comprehensive line of accessories enables you to build the camcorder system that meets your individual interests, talents, and needs. Here are some of the accessories that will help you achieve professional results in your home video productions. These and others are available through your RCA camcorder dealer.



AC028 Soft Camcorder Case

Designed especially to provide protection and utility for camcorders and most accessories. Rugged fabric lined with soft, non-abrasive material and generous padding. Has three outside pockets with storage for lens filters, adapters, batteries, and tape.



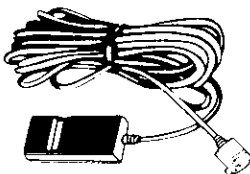
KK050 Rugged Hard Case

Sturdy case designed especially for safe transport of camcorder with custom-interior for holding numerous accessories.



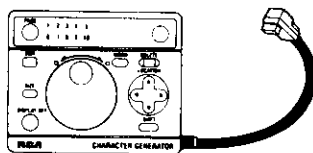
AVS010 Synchro Edit Cable

Can be used to copy tapes from camcorder to compatible VCR (one with a Camera Pause jack). With this cable, the PAUSE button on the camcorder also starts and stops the VCR during recording.



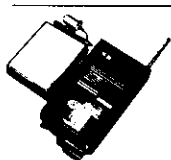
CRM020 Remote Record Start/Stop Switch

Allows you up to 15 feet of mobility from your camcorder. Lets you control the stop/start pause functions while appearing in the recording at the same time. See page 30 for connection diagram.



VTU090 Character Generator/ Titler

Lets you quickly add titles to your video tapes. Allows you to select each character by rotating the dial to a desired position. Adds titles up to 48 characters per page. Includes memory to store up to 10 pages and 50 frequently used words. Also permits 2 character sizes, allowing you the versatility to create professional titling results.



WM002 Wireless Microphone System

A compact and lightweight system which allows you to capture sounds up to 100 feet from your camcorder. Includes a high-performance omni-directional microphone and transmitter. Microphone clips to your subject's clothing while transmitter fits into a pocket or onto a belt. A powerful 13" antenna on the receiver provides maximum signal pickup within a 100-foot range.



LX152A Lens Extender (Telephoto)

Increases your camcorder's lens magnification power 1.5 times throughout its zoom range. Comes in an attractive snap-closure vinyl case with padded interior. Includes three step rings so you can also use it with other camcorders.



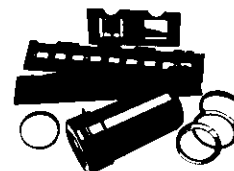
WAL01A Wide Angle Lens

Expands your camcorder's field of view by a factor of .6 thus affording you wide panoramas without panning. Comes in a vinyl snap-closure case with a padded interior. Includes three step rings so you can also use it with other camcorders.



AC029 Special Effects Lens Kit

Includes four filters and two step rings. The Center-Focus Filter gives sharp focus to center of picture and softness to edges for a vignette effect. The Rainbow Filter creates a multi-color halo around a bright spot in the picture. The Four-Point Starburst Filter adds bursts of light to bright spot in picture. The Polarizing Filter reduces glare caused by reflections and darkens and enriches blue sky while producing spectacular cloud backgrounds. The Step-Rings adapt the 52mm filters to also fit camcorders with 46mm and 49mm lenses.



FSA036A Slide Adapter

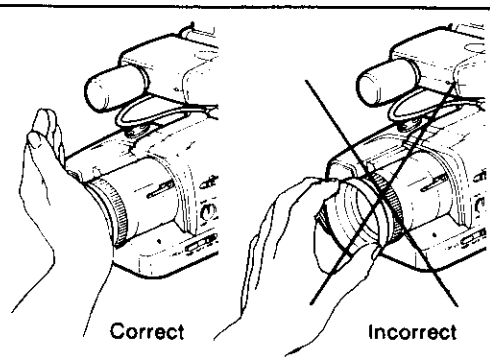
Enables you to transfer slides onto VCR tape. Includes four step rings, three sizes of frame holders, and one filter. You can use the Slide Adapter on any model of RCA camcorder or camera except CC004 and CC006.

Removing Lens Hood

The Lens Hood can be removed so you can attach optional accessories like the Wide-Angle Lens, Lens Extender, Lens Filter Kit, and Slide Adapter.

The correct way to remove the Lens Hood is shown here. Do not grasp the end of the Lens Hood.

To remove Lens Hood, put hand flat against lens hood and turn it counterclockwise.



Accessory Order Form

Accessory Order Form for RCA Camcorder Model CC285				
Description	Model No.	Price Each*	Qty.	Total Amount
Lens Care Kit	AC026	\$ 9.95		
Soft Camcorder Case	AC028	\$ 89.95		
Special Effect Lens Kit	AC029	\$ 59.95		
Deluxe Tripod	AC031	\$ 99.95		
VHS Head Cleaner	AV009W	\$ 14.95		
Rechargeable Long-Play Battery	AV046	\$124.95		
Synchro Edit Cable	AVS010	\$ 39.95		
Battery Connector	BCC030	\$ 19.95		
Rechargeable Battery	BP96FS	\$ 69.95		
Rechargeable Battery	BP96FL	\$ 99.99		
Single-Well AC Adapter/Charger	CPS08	\$189.95		
RF Output Adapter	CRF030	\$ 49.95		
Remote Record Stop/Start Switch (available 3/1/89)	CRM020	\$ 34.95		
DC (Battery) Car Cord	DCC096	\$ 69.95		
Y-Adapter Power Cable	DCY010	\$ 14.95		
Dual-Well AC Adapter/Charger	DWC010	\$199.95		
Slide Adapter	FSA036A	\$119.95		
Lens Extender (Telephoto)	LX152A	\$139.95		
Audio/Video Input Cable	VAA004	\$ 25.95		
Portable DC Light	VDC050	\$ 99.95		
Character Generator/Title	VTU090	\$149.95		
Wide Angle Lens	WAL01A	\$139.95		
Wireless Microphone System	WM002	\$159.95		
Audio/Video Output Cable	194128	\$ 30.60		
*Prices are subject to change without notice.				
Total Merchandise		\$	_____	
Sales Tax		\$	_____	
We are required by law to collect the appropriate sales tax for each individual state, county, and locality to which the merchandise is being sent.				
Insurance		\$.95	
Shipping and Handling		\$	3.00	
Total Amount Enclosed		\$	_____	
Use VISA or MasterCard preferably. Money order or check must be in U.S. currency only. No COD or CASH.				

Allow 8 weeks for delivery.
All accessories are subject to availability.
Where applicable, we will ship a superseding model.

Please complete other side also

Detach Here

To order the RCA video accessories described in the Owner's Manual, contact your local RCA Video Accessories Dealer; or you may use this detachable order form to order direct-by-mail the accessories listed here.

UNITED STATES ORDERS

Detach and mail order form with credit card information, money order, or check in U.S. currency (made payable to Thomson Consumer Electronics, Inc.) to this address:

RCA Video Accessories
PO Box 8419
Ronks, PA 17573

For more information on these accessories (or current prices), write to the following address:

Video Accessories Customer Service
Thomson Consumer Electronics, Inc.
Distributor & Special Products
2000 Clements Bridge Rd
Deptford, NJ 08096-2088

INTERNATIONAL ORDERS

This offer is valid only in the 50 United States. For international orders, please send your request for quotation (not an order) to:

International Customer Service
Thomson Consumer Electronics, Inc.
Distributor & Special Products
2000 Clements Bridge Rd
Deptford, NJ U.S.A. 08096-2088

Trouble Checks

- Troubles sometimes are caused by simple “faults” that you can easily correct without the help of a service technician by first checking a few basic remedies.
- Before you call or take your camcorder to an Authorized RCA Camcorder Servicer, look below for the type of trouble you are experiencing. Then perform the simple checks and adjustments listed for that trouble.
- If your camcorder is still in warranty, these checks and adjustments could save you time and the cost of an unneeded trip to the servicer. They also could save you the cost of a diagnosis not covered by your warranty. (See “What does your warranty *not* cover” on the back cover page.)
- If service should be necessary, the warranty information on the back cover page lists what your warranty covers and explains how to get service.

Trouble	Checks and Adjustments
No power (ON indicator will not come on)	<ul style="list-style-type: none"> • If using battery, maybe it needs to be recharged. • If using AC adapter/charger, make sure it is plugged into a working outlet.
Won't record or playback	<ul style="list-style-type: none"> • If power ON indicator is blinking, there is moisture in camcorder. Leave power on and wait for light to stop blinking. • Maybe there's no cassette in camcorder. • Try ejecting and re-inserting cassette. • Maybe the cassette tape is broken, try another cassette. • Maybe you've reached the end of the cassette, try rewinding it.
Won't playback	<ul style="list-style-type: none"> • CAMERA/PLAYBACK switch must be in PLAYBACK position.
Won't record	<ul style="list-style-type: none"> • Maybe record-protect tab has been removed from cassette. (See page 17.) • CAMERA/PLAYBACK switch must be in CAMERA position.
No picture in viewfinder	<ul style="list-style-type: none"> • Remove lens cap. • Maybe AUTO IRIS control is closed. Rotate control to AUTO (center “click”) position.
Tape stops during rewind or fast forward	<ul style="list-style-type: none"> • Tape-counter memory may be on. Whenever an “M” appears behind the tape-counter display, the camcorder will stop rewinding (or fast forwarding) when counter reads 0000. Press REW or F.FWD again to continue. Press DISPLAY button to turn off memory.
Camcorder remains in still-frame mode	<ul style="list-style-type: none"> • Press PAUSE to return to normal playback.
Poor picture quality during recording	<ul style="list-style-type: none"> • Insufficient light. If picture looks too dark in the viewfinder with the IRIS control in AUTO (center “click”) position, add light to scene.
Poor auto-focus operation	<ul style="list-style-type: none"> • Make sure AUTOFOCUS switch is in AUTO position. • Make sure operator is not covering auto-focus window during recording. • Maybe subject is dark or behind glass. Auto-focus may not work under these conditions. Slide AUTOFOCUS switch to MANUAL for manual focusing. • Maybe lens is smudged and image appears unfocused. • Maybe viewfinder eyepiece focus is misadjusted. (See page 20.) • Maybe camcorder is in macro-focus mode. Press and hold zoom button “T” to release macro-focus. • Don't use auto-focus with wide-angle or telephoto adapters.
Poor picture quality during playback	<ul style="list-style-type: none"> • If picture contains black-and-white streaks, adjust TRACKING control to correct. This is common when tape was recorded on a different VCR.
Flashing shutter-speed display in viewfinder	<ul style="list-style-type: none"> • There is not enough light to record at this shutter speed. • Slide SHUTTER speed button to reduce speed.

Trouble Checks (cont.)

Trouble	Checks and Adjustments
Picture is too dark	<ul style="list-style-type: none">● For best results, only use higher shutter speeds for outdoor action you specifically intend to play back in slow motion.
Power <i>ON</i> indicator is flashing	<ul style="list-style-type: none">● Excessive moisture in camcorder. Leave power on until light stops flashing.
Recorded audio is too low	<ul style="list-style-type: none">● Maybe <i>MIC WIND/NORMAL</i> switch was not returned to <i>NORMAL</i> position after outdoors recording.● Maybe subject was too far from camcorder. For long distances, try using a wireless microphone.
Viewfinder displays are out of focus	<ul style="list-style-type: none">● Try adjusting eyepiece focus control.
Can't see shutter-speed or index display in viewfinder	<ul style="list-style-type: none">● <i>CAMERA/PLAYBACK</i> switch must be in <i>CAMERA</i> position.● Press <i>DISPLAY</i> button to bring displays to viewfinder.
Date and/or time were recorded on tape	<ul style="list-style-type: none">● Date and/or time will be recorded on tape whenever they appear in the viewfinder. Press <i>DATE/TIME</i> button to remove them from viewfinder when recording.

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Specifications

General

Power requirement: 9.6VDC
Power consumption: 9.6 watts (normal)
Weight: 5.3 lbs. (2.4 kg)
Dimensions: 4-15/16" (W) x 9-3/16" (H) x 14-5/8" (D)
(126 x 233 x 372 mm)

Video Recorder Section

Format: VHS
Record/Playback System:
Two video record/playback heads
One Flying Erase Head
Headwheel Cylinder Diameter: 62mm
Video Signal: EIA Standard NTSC Color

Camera Section

Scanning: 525 Lines/60 Fields/30 Frames
Image Sensor: 1/2" high-resolution, solid-state CCD Imager
Tripod Mount: One 1/4" x 20 threaded hole
Lens: f1.2
6:1 (9-54mm)
Diameter: 46mm

Note: All features and specifications are subject to change without notice.

This digital apparatus does not exceed the class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

L'interférence radioélectrique générée par cet appareil digital ne dépasse pas les limites de la classe B édictées par le Règlement sur les perturbations radioélectriques du Ministère Canadien des Communications.

Limited Warranty

What does your warranty cover:

- Any defect in material or workmanship.

For how long after your purchase:

- Ninety days for labor charges.
- One year for parts.

The warranty period for rental camcorders begins with the first rental

What will we do:

- Pay any Authorized RCA Camcorder Servicenter the labor charges to repair your Camcorder.
- Provide new or, at our option, rebuilt replacement parts and pickup tube for the Authorized RCA Camcorder Servicenter to make the repairs.

How do you get service:

- Take your camcorder to any Authorized RCA Camcorder Servicenter. For their names and locations, ask your dealer, look in the Yellow Pages, or call 1-800-336-1900.
- Show the service technician your evidence of purchase date.
- Pick up your camcorder when repairs are completed.

What does your warranty *not* cover:

- Customer instruction. Your Owner's Manual provides information regarding operating instructions and user controls. For additional information, ask your dealer.
- Cleaning of video/audio heads, which is normal maintenance.
- Damage from misuse or neglect.
- Camcorders which have been modified or incorporated into other products.
- Camcorders purchased or serviced outside the USA.
- Battery for clock.

How does state law relate to this warranty:

- This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

What if you purchased your camcorder in Canada:

- Refer to the Canadian warranty.

Si un livret d'instructions en français n'est pas inclus avec votre appareil, vous pouvez en obtenir un (INDIQUER LE NUMERO DE MODELE, VOTRE NOM, ET VOTRE ADRESSE) en vous adressant à:

Thomson Électronique Grand Public du Canada, Inc. n.c.
Service des données techniques
6540 Tomken Rd.
Mississauga, Ontario, Canada
L5T 2E9

RCA

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or Authorized RCA
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